ATHLETIC JOURNAL

SPOT BILT

COMPRESSO-LOCK CLEATS

Soft rubber cleat.

Pat. App. for Compresso-Lock Rubber Disc.

Steel Washer.

Without abandoning the highly successful type of female cleat, Spot-Bilt meets rules committee's request for (1) a cleat of soft rubber; (2) a cleat that stays on

The new Compresso-Lock cleat, originated and tested by Tucker P. Smith of Ohio State University and perfected by Spot-Bilt, is characteristic of the cooperative spirit and the practical ability of Spot-Bilt's technical staff.

Here is a cleat that conforms to the football rules committee's requirements and at the same time retains the features of the practical and highly successful type of female cleat.

It would be an easy matter for Spot-Bilt to furnish a male type cleat (with the post in the cleat), an assembly which has been tried and discarded by hundreds of schools and colleges because it proved unsatisfactory, impractical and more costly.

Our experience has been that the female type cleat we have been using is not only satisfactory but practically foolproof. Because of this fact, and knowing the trouble coaches would get into with football shoes equipped with the impractical male type cleat, we determined to develop a method of preventing the female type cleat from spinning off. Tucker P. Smith worked on this idea for months. With the assistance and facilities of the Spot-Bilt organization this idea is now a practical reality—Compresso-Lock cleats.

WITCHELL-SHEILL CO.

1635 AUGUSTA BLVD., CHICAGO

Since 1898—ATHLETIC SHOE SPECIALISTS

ARE YOUR ATHLETES SUBJECT TO TAPE IRRITATION?

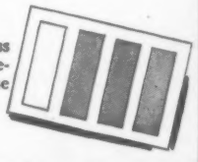
Then Use New Bike Web *Formula 87* Trainers Tape

LESS ALLERGIC: Scientific patch tests made by independent dermatologists show Formula 87 fifty per cent better than the nearest competing brand tested, in reducing the occurrence of painful inflammation due to irritation from adhesive.

LESS CREEP: Laboratory tests show that Formula 87 not only gives a minimum of creep when fresh, but maintains this quality even when aged.

MINIMUM DETERIORATION: Formula 87 is a long life tape. Its deterioration due to extremes of heat and cold or other atmospheric conditions is extremely slow. In this it is outstanding.

PURE WHITE: Formula 87 is the only adhesive mass pure white in color. It is white because of its freedom from many of the impurities which may cause irritation.



New Bike Web Trainers Tape cuts down allergy and has less creep and deterioration with age

FORMULA 87 brings to coaches and trainers an adhesive far better than any previously obtainable. Its development represents the most important improvement in adhesive for athletic use in many years—an improvement reached only after intensive research and scientific study. This has resulted in a new pure white adhesive which not only will adhere immediately and hold firmly but also gives you new exclusive features!

Tests show that a high percentage of athletes are susceptible to irritation from adhesive—many seriously so. Formula 87, through the elimination of ingredients found to be positive irritants and the use of a more pure rubber, so far reduces this irritation that in patch tests made at a leading mid-western medical school it was shown to be 50% *less irritating than the nearest competing brand tested!*

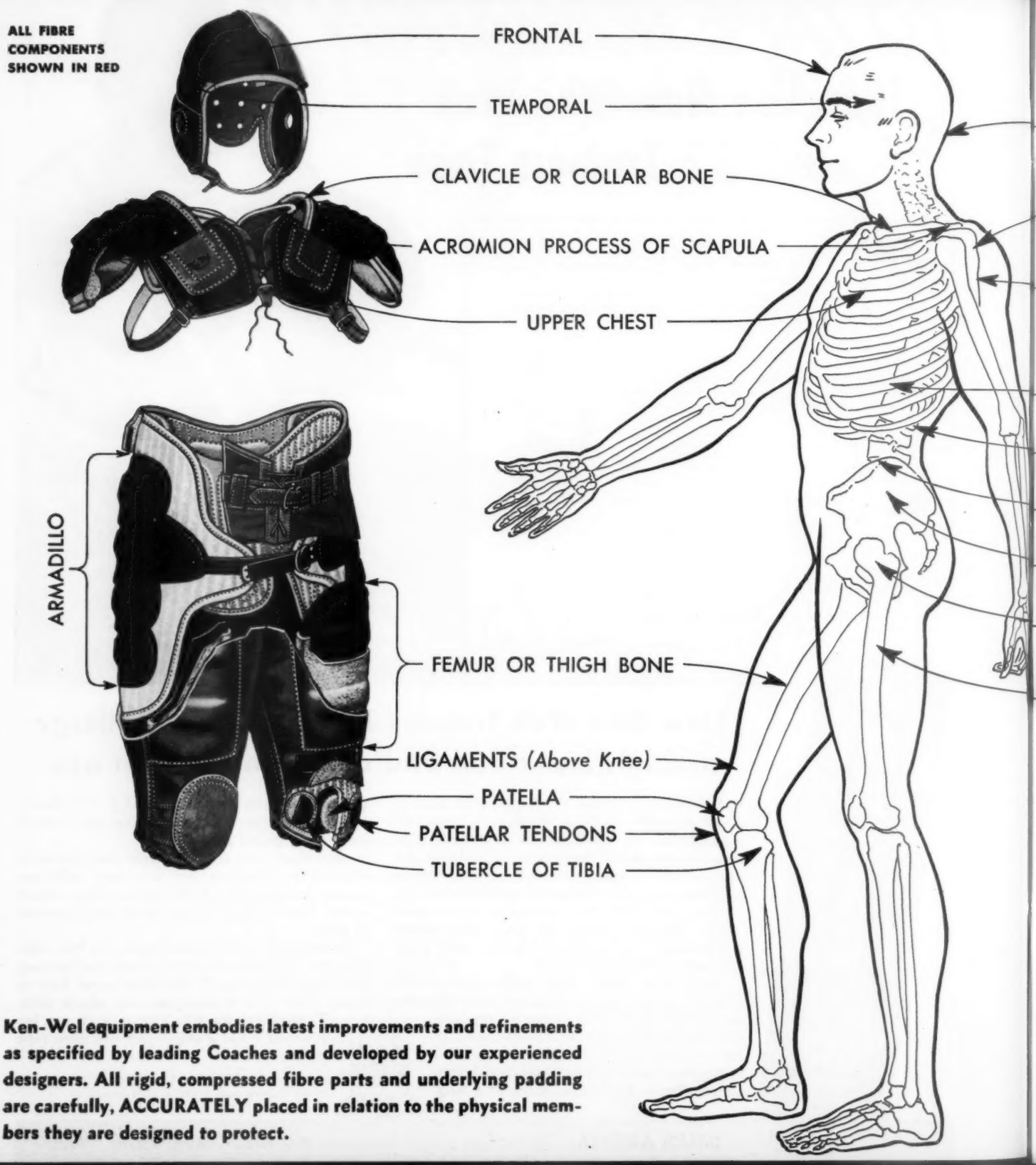
And that's not all! Not only does Formula 87 reduce irritation but this new adhesive resists deterioration with age—reduces creep—and retains its tackiness over long periods of time.

Every coach and trainer wants the best supplies for his athletes—every coach and trainer will want Formula 87 adhesive tape! Get in touch with your dealer—ask him about Bike Tape Formula 87. Try it and see for yourself what a difference this new tape makes.

Bike Formula 87 Trainers Tape comes in 10 yds. x 12 inches assorted cuts, 5 yds. x 12 inches uncut.

BIKE WEB MANUFACTURING COMPANY

MAXIMUM PROTECTION

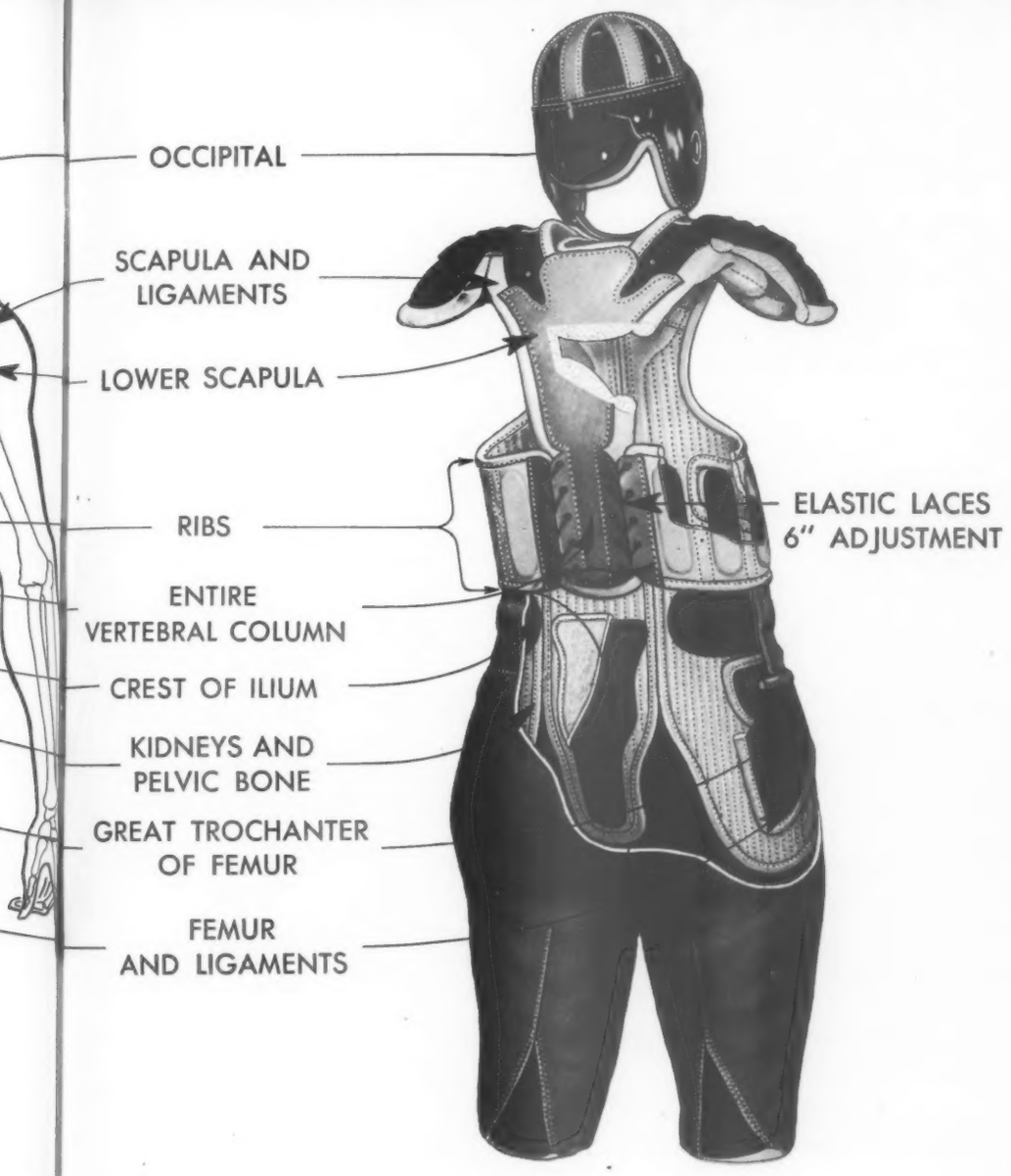


Ken-Wel equipment embodies latest improvements and refinements as specified by leading Coaches and developed by our experienced designers. All rigid, compressed fibre parts and underlying padding are carefully, ACCURATELY placed in relation to the physical members they are designed to protect.

Ken-Wel

FINE WORKMANSHIP

MINIMUM WEIGHT



Ken-Wel "Bodiguard", shown above, combines shoulder pad and rib protector in a single comfortable garment, LIGHTER IN WEIGHT THAN TWO-PIECE EQUIPMENT.

Adjusted ONCE at beginning of season, it fits perfectly. Easy to slip on and off as a vest. Permits great freedom of action.

Helps get men out on the field more quickly. Fewer pieces to be lost, misplaced, or left unworn in the locker room. Many improvements in construction INCREASE protection to vulnerable spots. Exclusive, padded leather spine guard protects vertebrae. Hailed by many coaches as "the greatest advance in protective equipment in a decade," Bodiguard has proved its great value on gridirons all over the U. S. A.

Coaches are showing steadily increasing preference for Ken-Wel football equipment on two counts:—

1. Technically, anatomically correct in design, taking into consideration maximum protection—minimum weight—freedom and ease of action, and players' comfort.

2. Unusually good values. Ken-Wel equipment is efficiently produced in a large, modern plant by skilled operatives who have the latest machine tools and facilities to produce fine quality *economically*.

The Ken-Wel Line includes all the most widely used equipment from which the Coach may select items best suited to his needs.

Footballs, Helmets, Shoulder Pads, Pants, Hip Pads, Rib Protectors, Face Guards, Tackling Dummies, Athletic Supporters, Accessories.

If you want to obtain the utmost in protective and playing qualities for your investment, be sure to examine Ken-Wel equipment.

Dealer's Name Sent on Request

If you do not know who can show you Ken-Wel Samples, please write us for name of dealer nearest you. If you would like copies of this chart, without advertising text, and words "Play Safe" at top, they will be sent free on request. Address Ken-Wel, Utica, N.Y.

Ken-Wel

SPEAKS FOR ITSELF

VOLUME XIX

The ATHLETIC JOURNAL

NUMBER 8

CONTENTS
for April, 1939

PAGE

9 Throwing the Javelin.....Charles D. Werner

14 Changes in High Jump Form.....Frank C. Potts

18 The Texas Interscholastic League Revises Rules.....R. J. Kidd

19 The Play of the Outfield.....Lou Fonseca

20 Editorials

22 How We Maintain Good Turf on Athletic Fields in Pennsylvania .....Fred V. Grau

23 Floodlighting Practice for a Sports Field.....E. B. Karns

26 Are College Athletics Commercial and Is It Necessary to Subsidize Athletes to Produce a Winning Team?.....John L. Griffith

30 Kicking Stars Are Made in the Spring.....Edward J. Storey

34 Night Football Is Here to Stay.....Ralph A. Piper

38 Deciding a Conference Three-Way Tie in Basketball..... .....Charles S. Barnard

39 A Hundred Years of Baseball

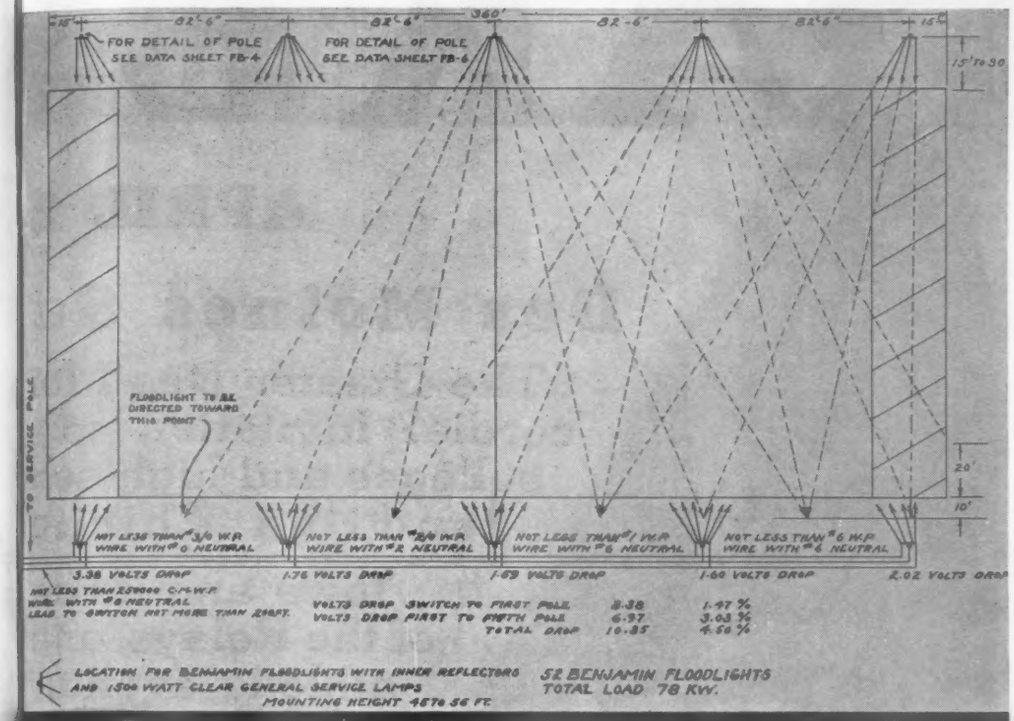
40 The Popularity of Six-Men Football in the Texas Winter Garden District .....Elmer A. Brown

PUBLISHED MONTHLY except July and August by the Athletic Journal Publishing Company, 6858 Glenwood Avenue, Chicago, Illinois, Member Audit Bureau of Circulations. Request for change of address must reach us thirty days before the date of issue with which it is to take effect. Duplicate copies cannot be sent to replace those undelivered through failure to send advance notice.

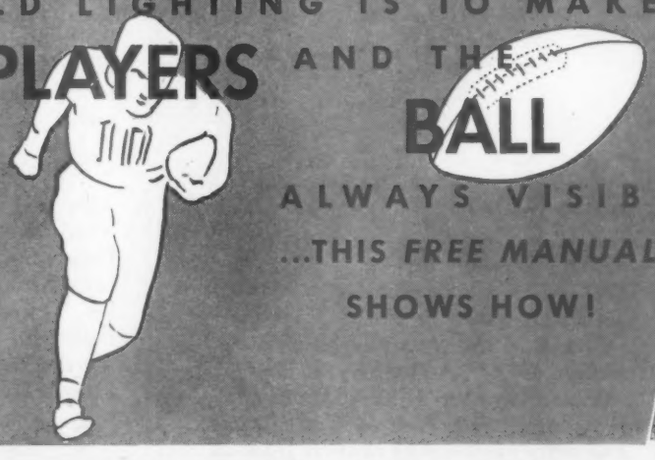
SUBSCRIPTION PRICES: $1.50 per year; $2.00 for two years; $2.50 for three years; 90 cents for six months; 75 cents for five months; Canada, $1.75 per year; foreign, $2.00 per year. Single copies, 25 cents. Copyright, 1939, The Athletic Journal Publishing Company. Entered as second-class matter, August 14, 1925, at the post office at Chicago, Illinois, under the Act of March 3, 1879.

How to Light Football Fields

To Attract More Spectators and Provide Better Playing Conditions


FOR DETAIL OF POLE SEE DATA SHEET FB-4
FOR DETAIL OF POLE SEE DATA SHEET FB-6
360'
82'-6"
15'
15' to 30'
20'
10'
FLOODLIGHT TO BE DIRECTED TOWARD THIS POINT
TO SERVICE POLE
NOT LESS THAN #3/0 W.P. WIRE WITH #6 NEUTRAL
NOT LESS THAN #2/0 W.P. WIRE WITH #2 NEUTRAL
NOT LESS THAN #1/0 W.P. WIRE WITH #6 NEUTRAL
NOT LESS THAN #6 W.P. WIRE WITH #6 NEUTRAL
3.38 VOLTS DROP
1.76 VOLTS DROP
1.69 VOLTS DROP
1.60 VOLTS DROP
2.02 VOLTS DROP
NOT LESS THAN 250000 C.M.W.P. WIRE WITH #8 NEUTRAL LEAD TO SWITCH NOT MORE THAN 250FT.
VOLTS DROP SWITCH TO FIRST POLE 3.38 1.97%
VOLTS DROP FIRST TO FIFTH POLE 6.97 3.03%
TOTAL DROP 10.35 4.56%
LOCATION FOR BENJAMIN FLOODLIGHTS WITH INNER REFLECTORS AND 1500 WATT CLEAR GENERAL SERVICE LAMPS
MOUNTING HEIGHT 45 to 56 FT.
52 BENJAMIN FLOODLIGHTS
TOTAL LOAD 78 KW.

THE KEY TO CORRECT FOOTBALL FIELD LIGHTING IS TO MAKE THE **PLAYERS** AND THE **BALL** ALWAYS VISIBLE ...THIS *FREE MANUAL* SHOWS HOW!



BENJAMIN

LIGHTING EQUIPMENT

Distributed Exclusively Through Electrical Wholesalers

GET THIS FREE MANUAL OF APPROVED LIGHTING LAYOUTS AND CORRECT. FLOODLIGHTING PRINCIPLES

There can be no question about the success of night football. Educators and coaches alike are unanimous in their approval. You can read their own experiences in Benjamin's new Football Floodlighting Manual where they tell how Benjamin Floodlighting increased attendance 50%, 75%, 150% and as much as 300%, and how new spirit is infused in students, alumni and townspeople.

There are questions, however, about how best to floodlight your field, questions on which you should have correct and up-to-date information to make sure your players and spectators have proper lighting for playing and watching the game.

The enjoyment of spectators depends largely on whether they can clearly and easily see to follow the play on the field. The same superiority of adequate and uniform light, properly controlled and directed, which makes playing easier on Benjamin floodlighted fields, also adds to the enjoyment of spectators by assuring them of seeing all the action of the game.

Benjamin's unique method of floodlighting best meets the important key requirement of correct football field lighting, by providing exceptional lighting not only on horizontal ground surfaces but, what is most important on vertical surfaces—the front, back and sides of the players and all faces of the ball . . . insuring best seeing and protection from glare for players and spectators.

The lighting layout illustrated on this page is one of many outstanding plans developed by Benjamin lighting engineers out of an experience in football field lighting which began eleven years ago, when Benjamin lighted, at Westville, Illinois, what was probably the first high school night game ever played. You will find lighting layouts, installation information, principles of illumination design, and answers to every important question on floodlighting contained in the new Benjamin Football Floodlighting Manual. Also available without cost or obligation are the services of your local Benjamin Distributor and the Benjamin Engineering Department. Address the Benjamin Electric Mfg. Co., Des Plaines, Illinois, or use the coupon below.

Benjamin Elec. Mfg. Co., Des Plaines, Illinois

Please send, without obligation, your new Manual on HOW TO OBTAIN BEST RESULTS FROM FOOTBALL LIGHTING.

Name.....

Address.....

City..... *State*.....

THIRTIETH A
AKE

APRIL 28

Des Moines Say

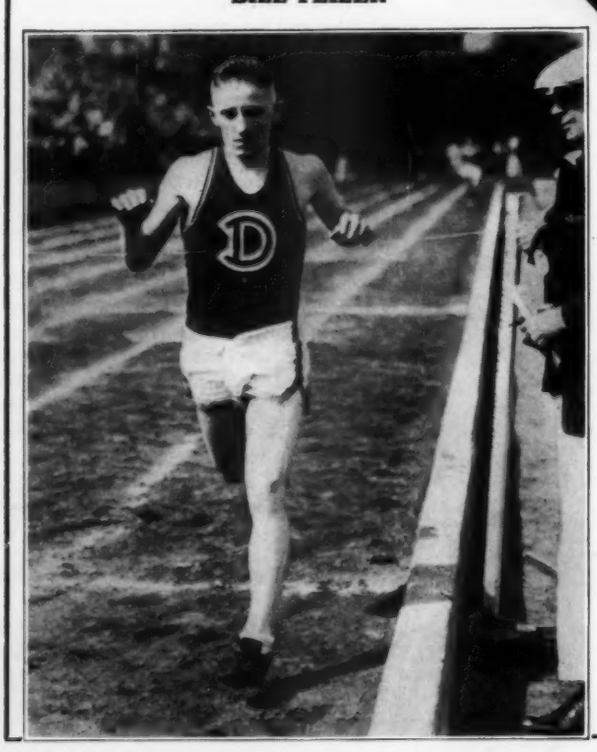
The Greater Des Moi
cordial invitation to
colleges and high sch
tend the Thirtie

Iowa and its ca
of the Relays, one
athletic events
they will make
have your sta
and plea

Founder
John L. Griffith

Director
Franklin P. Johnson

BILL FEILER



Drake's Bill Feiler, one of the nation's leading distance runners, will probably be entered in the 2-mile run at this year's Drake Relays, April 28 and 29. Feiler will race against Walter Mehl of Wisconsin, Greg Rice of Notre Dame and other outstanding runners from all parts of the country. The Drake Relays is celebrating its 30th anniversary this year.

PRO

Special Events

100-Yard Dash, 120-Yard High Hurdles, Shot Put, Javelin Throw, Broad Jump, Discus Throw, 440-Yard Hurdles, Two-Mile Run, Pole Vault and High Jump. (Open only to college and university men.)

University Section

440-Yard Relay, 880-Yard Relay, One-Mile Relay, Sprint Medley Relay, Distance Medley Relay, Two-Mile Relay, Four-Mile Relay and 480-Yard Shuttle High Hurdle Relay.

College Section

880-Yard Relay, One-Mile Relay, Sprint Medley Relay and Two-Mile Relay.

ANNUAL RELA

28 and 29

ys "Welcome!"

nes Committee extends a athletes of universities, ools of America to at- th Drake Relays.

pital city are proud of the outstanding of the world, and every effort to y here a happy sant one.

GRAM

High School Section

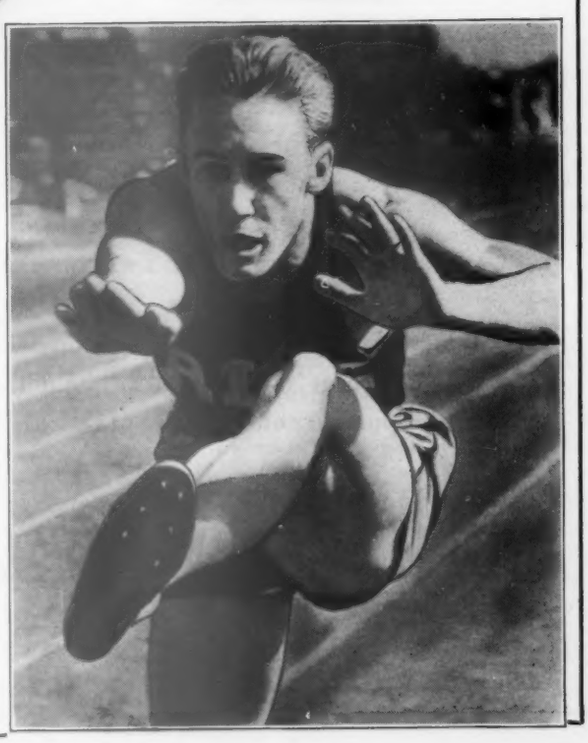
(Separate Relays for Class A and Class B Schools; Iowa high schools with over 600 students, and all out of state of Iowa, are in Class A.) 440-Yard Relay, 880-Yard Relay, One-Mile Relay and Two-Mile Relay.

Gold Elgin watches will be awarded to members of all winning relay teams in the college and university sections and all special events champions. New medallions also will be awarded to all place winners, including high school relays.

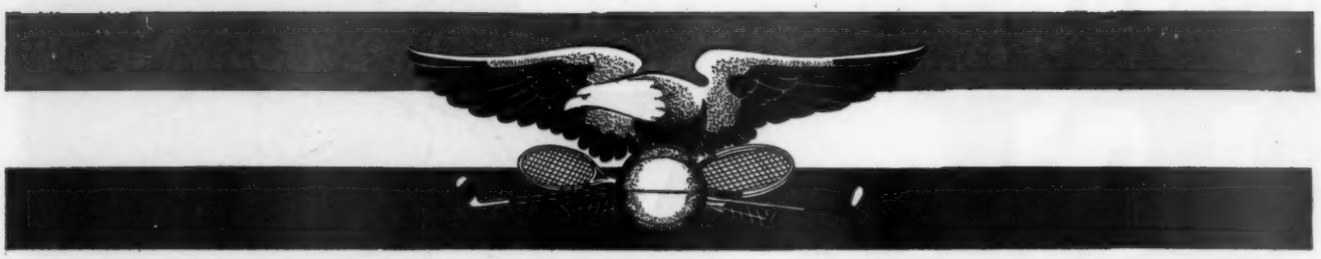
We'll Help You Make Your Reservations

The Headquarters Chairman of the Drake Relays Committee will be glad to make hotel reservations for you and your team. Special railroad rates—one fare plus 1/3 for round trip from any point in the United States—may be obtained.

FRED WOLCOTT



Fred Wolcott, Rice Institute star who cut the Drake Relays 120-Yard high hurdles record down to :14.2 last year, will be back again for another crack at the Drake mark. Wolcott is rated the world's No. 1 hurdler—and one of the nation's best sprinters, and will be set to shatter marks in this year's cinder classic.



OUTFITTERS TO CHAMPIONS

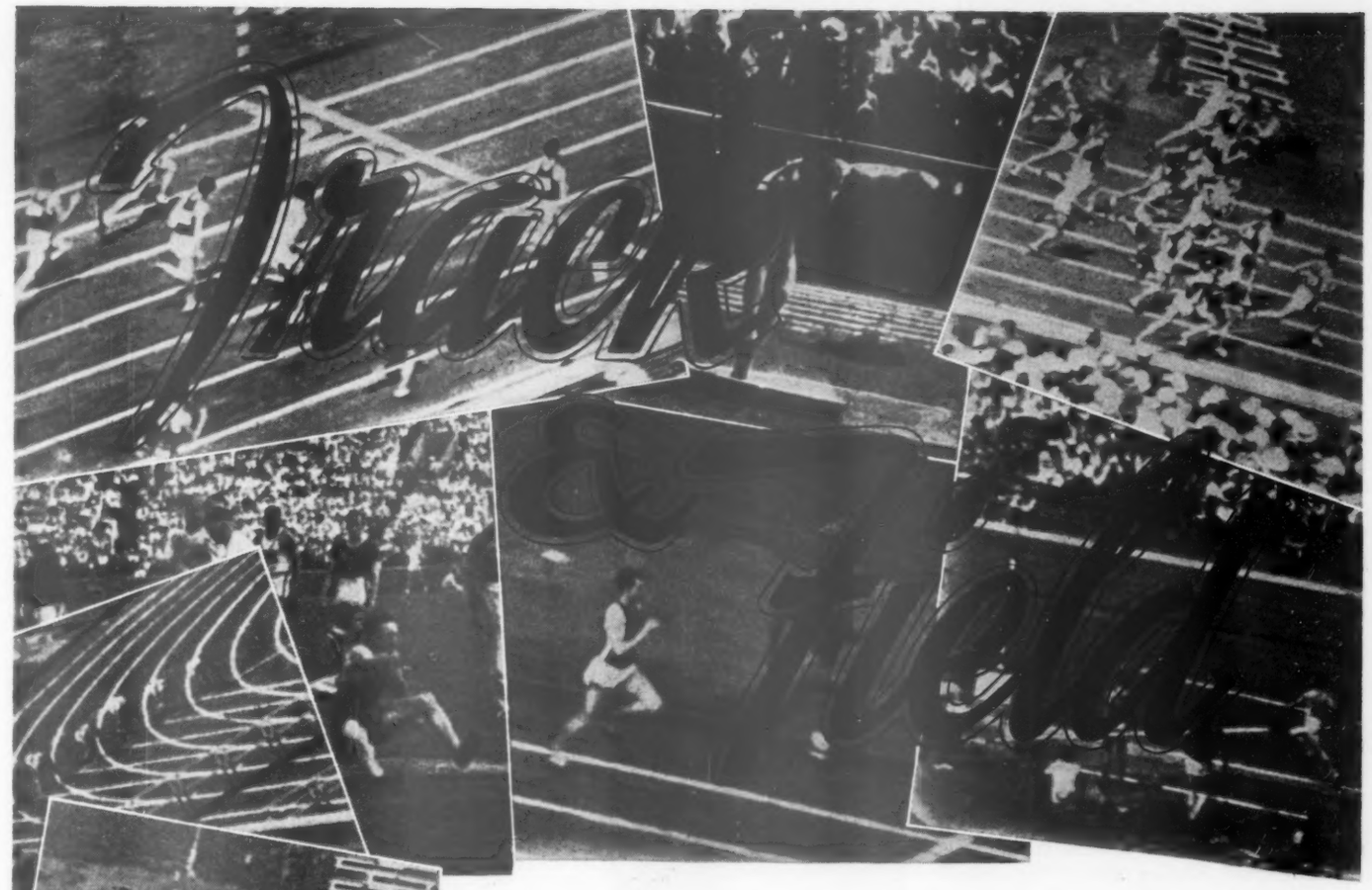
From shoes to jerseys, from javelins to vaulting standards — A. G. Spalding & Bros. has outfitted many Olympic teams. And most of the members got the equipment they had always used. For Spalding equipment was already standard in track and field events when the Olympic Games were revived in 1896, and has been constantly improved to meet modern requirements with modern equipment.

Designed in collaboration with athletes, trainers and coaches, Spalding outfits are practical as well as comfortable. Most World records, for example, have been made in Spalding running shoes. Our methods of testing materials, plus our methods of construction and our designs, make Spalding track and field shoes the finest there are. Spalding equipment meets all official specifications.

Our long experience in this field is at the disposal of coaches. For the answer to your track and field problems write to The Department of Public Information, A. G. Spalding & Bros., Chicopee, Mass.

A. G. Spalding & Bros.

TRACK AND FIELD EQUIPMENT



Throwing the Javelin

By Charles D. Werner

Track Coach, The Pennsylvania State College

THE javelin throw, *when executed properly*, is a most spectacular and thrilling event. One sees the well-trained athlete approach the throwing zone with many skills gathering to a peak, yet so well co-ordinated that they appear very simple. The actual throw is a conspicuous explosion of forces, created by what seems to be a smooth graceful acceleration of speed, a placing of the body into a throwing position by means of a definite plan of footwork and balance, and finally all of this is directed into the javelin. The implement shoots out at an upward angle as though shot out of a gun. It travels with little, if any, quiver or wobble and, after completing a perfect arc, it lands with its point driven into the earth. Meantime, the thrower has not lost any of his balance or control. He completes his throw so as to be able to watch the result of his effort in perfect composure. As such a throw is made, most of the onlookers will be relaxed during the run, will tighten up and emit an assisting grunt during the explosion or throw, then relax and "ahhhh" as the javelin completes its arc and lands far down the field. At the beginning, I qualified this by saying, "when properly executed?" Therein lies the tale.

Now, when improperly executed, any one fault, or combination of faults may detract from the above. Not only do errors detract from the smooth continuity of graceful maneuvers which in any track event are called good form, but also the ultimate objective—distance will not be attained.

Good form is considered to be an expenditure of effort in the most efficient manner. This calls for a knowledge of all of the various exertions or forces which may be applied that the objective may be attained. It requires constant and diligent practice for the athlete to acquire and apply this knowledge properly. Natural ability and co-ordination are very valuable assets, but the average boy may obtain good form by careful study and practice under proper coaching. It demands analytical thinking, untiring effort and a desire to reach a goal. The formation of habits of perseverance and the satisfaction that comes from a successful performance are worth while to any boy.

Size is not a factor in javelin throwing. We have had champions of varying statures and weights from 135 pounds to 200 pounds. Good form is important.

Most of what we term good form is copied from those who have enjoyed the greatest success, the champions and record

holder. However, diversions from the orthodox often bring new and better methods.

Athletes from Finland have more or less dominated the javelin throw in the Olympic games, and one of their native sons, Matti Jarvinen, is the present holder of the world's record of 253 feet 4½ inches (1937).

American throwers are coming up as shown by the performance of Larry Bell of Miami University, Oxford, Ohio, in creating a new American record of 231 feet 7¼ inches and by the greater number of 200-foot throwers appearing in high schools and colleges. We all look forward to the day when American boys will become factors in the scoring in Olympic competition. It is only fair to mention that in Finland, javelin throwing is a favorite pastime among a large percentage of young boys, whereas in our country baseball entices most boys of natural throwing ability.

Track coaches have agreed that a good throwing arm is a decided advantage in this event. Several examples of baseball players or exceptionally good forward passers in football applying their throwing ability to the javelin throw are known to coaches. Until recently, the Penn State javelin record was held by Danny Musser, a third baseman, who alternated between the two sports during the spring season. His best mark was 200 feet. "Frosty" Peters, one of the greatest forward passers of Illinois football, held the freshman record in the javelin at very close to 200 feet. At present, one of this country's leading javelin prospects is Bob Peoples, a fullback at Southern California. And so on—this correlation is known to exist.

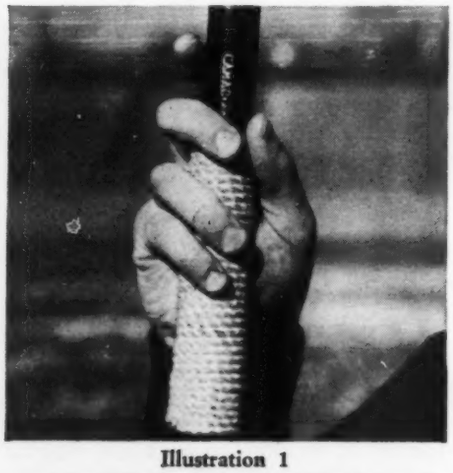


Illustration 1

Illustration 2

In the following discussion of form, I will try to cover the various items of orthodox form and perhaps elaborate a bit on the form used by Penn State's present national champion, Nick Vukmanic.

The Grip

Illustration 1 shows the grip most commonly used today. This grip was taken from the Finns. It shows the thumb and middle finger grasping the edge of the cord. Note that most of the gripping is near the extremities of the thumb and middle finger. The forefinger is kept out of the way somewhat and the last two fingers are wrapped around the cord so that a firm grip is assured and thus wobbling is prevented during the actions preliminary to the throw. Note that the javelin rests in the hollow of the hand, rather than on the heel or up near the base of the fingers. This allows for the added impetus of a wrist flip as a finale to the throw, and prevents wobbling when the thrower pulls his arm back. The javelin will not point outward as is usually the case. Most beginners find that the javelin is more easily brought back to a full arm's length with this grip.

Illustration 3

Illustration 2 shows the same features as are shown in Illustration 1, except that the forefinger and thumb are at the edge of the cord. Both of these grips have been used with success.

Illustration 3 shows one variation of the shoulder carriage used during the run preliminary to the assuming of the throwing stance. Note that the javelin is pointing down and slightly in, so that when it is pulled back, the point will not go outward and the angle will not become too great.

Illustration 4 shows the side arm carriage. Again, the javelin points straight forward, square to the shoulders and at the throwing angle. Note that the palm of the hand is away from the body. This eliminates an untwisting of the hand and wrist and lends to simplicity. Some coaches find that short men have trouble with this carriage because the tail of the javelin sometimes strikes the ground during the approach.

There are a few other methods of carriage such as the front pump-action carriage and the circle-swoop carriage. These are quite successful, but lack the simplicity of the two mentioned above. They require perfect timing, which is difficult to acquire.

The Approach Run

The run varies in length according to the individual. The average length of the run is about 38 to 40 feet, and the runner takes about eight steps.

The important feature of the run is that the speed be constantly increased and that the thrower enter his footwork so that the ensuing actions, including the throw, take place with no stopping or slowing up until the actual throw is made. When properly done, this forward speed is stopped mainly by the force which is applied to the javelin.

A very common fault among throwers is that they run too fast in the approach and then find it necessary to stop to get into a proper throwing stance. A good method for a boy to adopt is to start slowly, gradually accelerating his speed, but still running slowly enough to have perfect co-ordina-

Illustration 4

Illustration 5

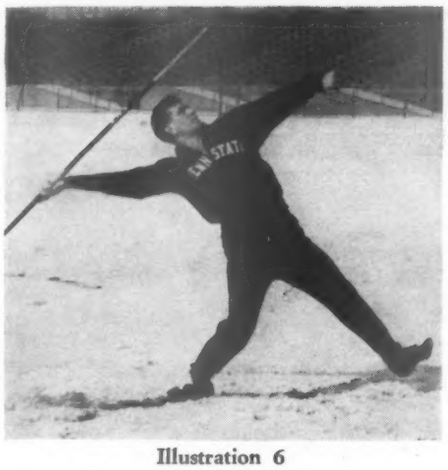


Illustration 6

tion and balance so as to be able to execute the throw in complete control as he gets into the throwing stance. A beginner should finish his run so as to control the remaining actions well. He may speed up the run gradually as he acquires additional control. This may come quickly or it may take a year or two before he can reach the throwing stance with maximum speed and still retain control. Vukmanic used a 33-foot run with six strides during his freshman year at Penn State. Last year his run was lengthened to 42-feet, with eight strides, and this year we hope to lengthen it to 55 feet with ten strides. He could not utilize his full speed in the run heretofore, as it caused him to be off balance for the rest of the actions. He has gradually worked the additional speed into the throwing stance, until we now feel that he can use the added run, added strides, and added speed. I believe that he can still add more speed later on, but control during the throwing stance and throw is far more important than too much speed so that he would lose control.

In addition to a gradual increase in speed, the run should be with a bounding stride, as relaxed as possible and with a good forward lean. The carriage of the javelin should be firm throughout the run regardless of which form of carriage is employed.

Illustration 5 shows Vukmanic during his approach run.

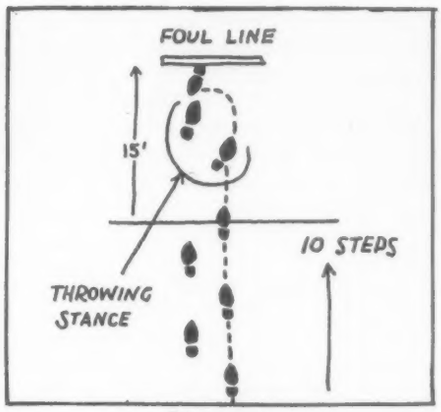


Diagram 1

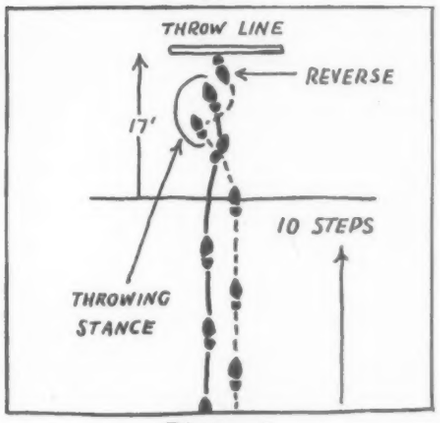


Diagram 2

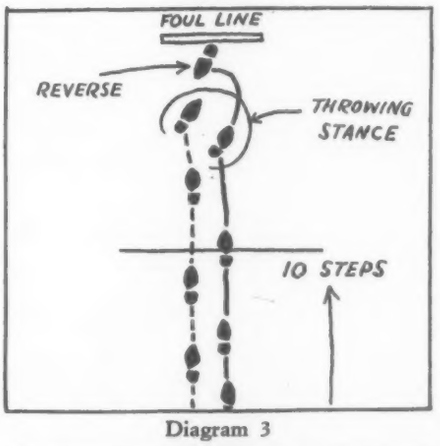


Diagram 3

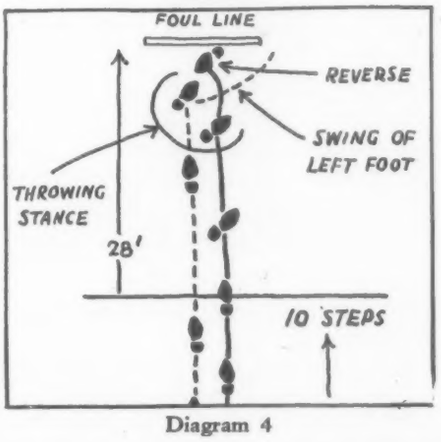


Diagram 4

It requires a good deal of practice for a thrower to determine the correct distance for a run and the athlete should know this exactly, so that he can establish his marks

Illustration 7

with a tape measure. Various types of runways and weather conditions will alter these measurements. Such conditions may be turf, firm or loose, clay, cinders, head wind, tail wind, cross wind, rain, hot or cold weather. Any of these may alter the measurement of the run, and the thrower should be prepared to make such adjustments.

The Footwork

It is the author's opinion that any style of footwork which allows the thrower to get into the throwing stance in complete control of himself and without diminishing the momentum acquired by the approach run is good. The four most popular styles of footwork used are: (a) The hop form, an American style, (Diagram 1). (b) The rear cross step, an American style, (Diagram 2). (c) The front cross step, the Finnish style, (Diagram 3). (d) The combination hop and front cross step, (Diagram 4).

The distances used in these types of footwork vary according to the size and speed of the individual and should be worked out in practice.

The Throwing Stance

Illustration 6 shows Vukmanic in the throwing stance. This stance is common to all types of footwork. The throwing stance has forward momentum, without loss of balance, with the javelin pointed at the throwing angle, and *the throwing arm fully extended to the rear.* Note that the weight is over and slightly back of the right leg. The right leg is bent and the right foot points slightly forward. The right shoulder is dipped. The right arm

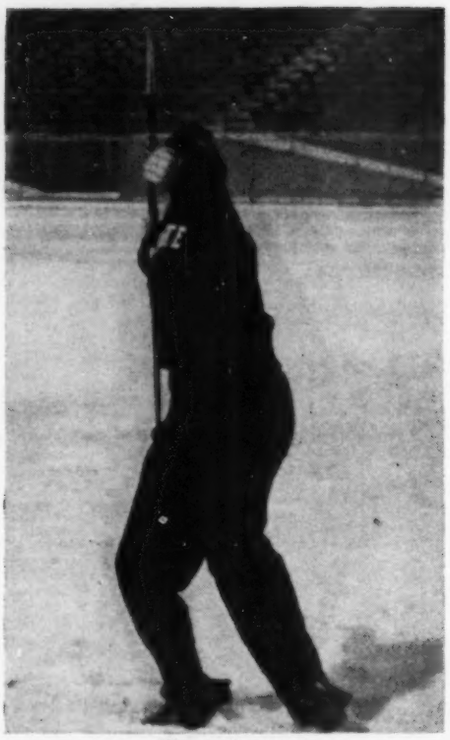


Illustration 8

Illustration 9

is back and fully extended. You will observe that Vukmanic's left foot has not quite reached the ground. When it does strike the ground, his throw will have started with the arm movement forward, the shoulder twist and the forward extension of the bent right leg, and with the body lunge. All of these occur simultaneously.

Illustrations 7, 8, 9 and 10 show stages of the run, the throwing stance, the throw and the release. It is most important that the elbow precedes the hand as it passes the shoulder. This will insure a good throw and prevent injury to the elbow. The higher the thrower can get his hand over the right ear, the greater centrifugal force he can apply. He should be careful not to dip his left shoulder, as this tends to throw the body to the left and away from the throw rather than into it.

The Release

Illustration 11 shows the thrower leading the throw with his elbow.

Illustration 12 shows the throw being led with the hand rather than with the elbow. Such throws are largely responsible for elbow injuries. This is a common fault.

Many throwers hold on to the javelin too long, and some release it too early. The athlete should develop a feeling of when to release his grip on the javelin. When

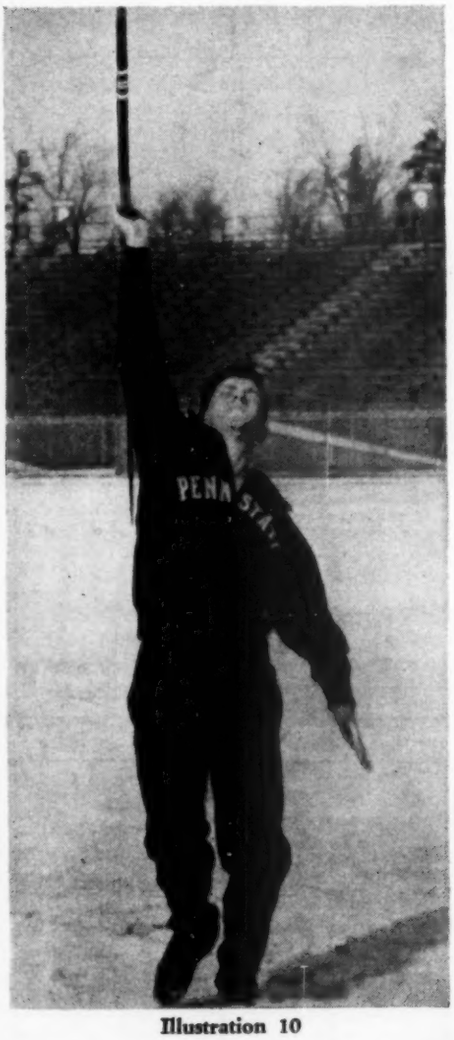


Illustration 10

properly done, this will immediately follow the wrist flip.

When throwing into a hard wind, the athlete will get the greatest distance from a low throw; when with the wind, from a high throw.

Throwing into the Shaft

Throwing into the shaft is one of the most difficult things for a beginner to learn. A good thrower will direct every force available directly into the javelin at the desired angle of flight. Sometimes, this is made impossible by the point of the javelin shifting slightly up just as the throw is being made. When this occurs, the forces seem to be applied downward instead of into the shaft and into the arc of flight. Quite frequently, throwers actually pull down as they throw, and this also detracts from a true flight and distance. It has been observed of the foreign champions, that they seem to raise the hand up momentarily during the throw to offset this tendency towards a down pull.

In a perfect throw, the thrower will be able to see but a small bit of the javelin as it leaves. If he can see the point, shaft and tail, he has a faulty throw. Most present day throwers seem to rifle the javelin in a clockwise spin, although this occurs without premeditated effort. Some of the best throws have been with a rifling javelin and others with a dead stick.

The Reverse of the Feet Following the Throw

The reverse of the feet following the throw occurs after the javelin leaves the hand and is for the sole purpose of stopping the forward momentum to prevent fouling. Many beginners misinterpret the reverse as being a part of the actual throwing action and make the common mistake of throwing in reverse, or while the feet are off the ground, and it is then impossible for them to drive forward or to use the ground grip to aid in the body lunge and shoulder turn.

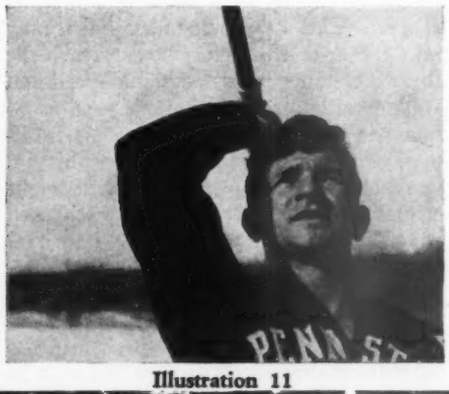


Illustration 11

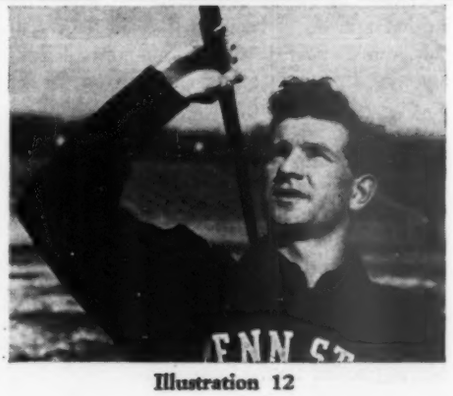
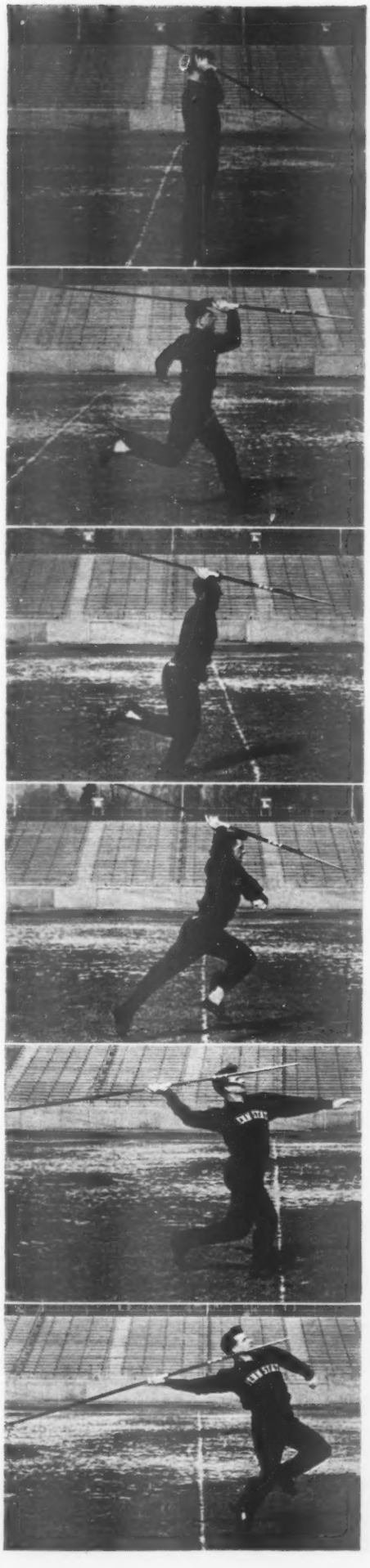


Illustration 12



Importance of Throwing Straight Forward

Since the rules state that ". . . all measurement shall be made from the nearest landing point of the javelin *perpendicular* to the foul line or the foul line extended," it is obvious that a straight ahead throw will get the maximum measurement.

Practice Methods

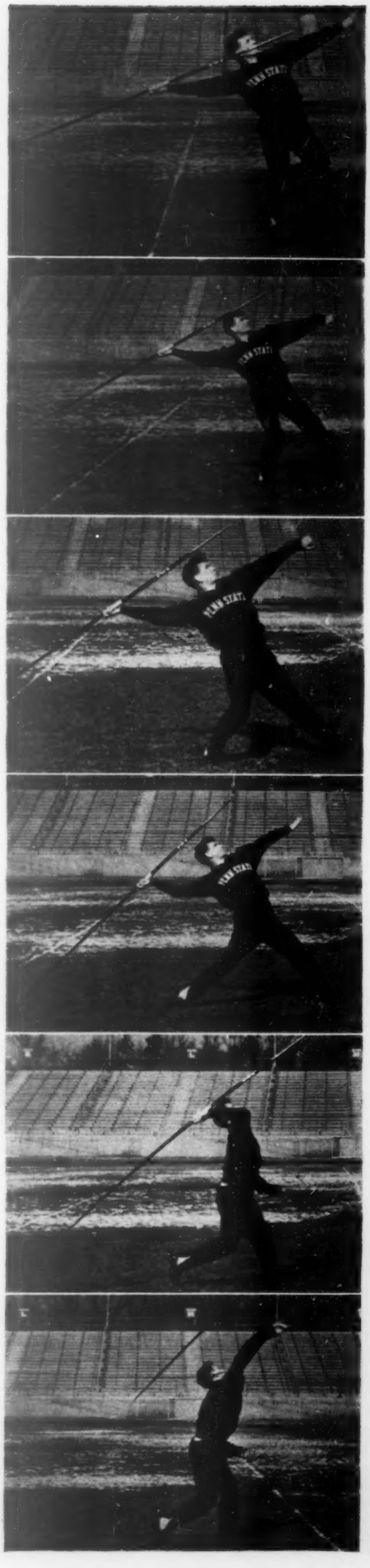
In practice, the thrower should work on that part of his form in which, in the opinion of the coach, he is the least proficient. At the same time, he should be constantly endeavoring to improve each of the other many phases of his skill.

A good plan to follow is: (1) Warm up well; this is imperative. A javelin thrower must warm up gradually before attempting any fairly long throws, just as a pitcher in baseball. It is advisable for him to wear a long warm garment over the throwing arm in the warm-up. Liniments, oils, light rubs, etc. are in order. (2) Work on general form, as well as on your main weakness. (3) Throw for distance but once a week, usually on Saturday or on the day of the meet. Unless necessary, conserve your throws. (4) Work on the check-marks, steps, footwork, etc. every day. (5) Since one cannot throw hard but one day a week, it may be advisable to try another event as a side issue; seek the coach's advice regarding this.

The number of elbow injuries which occur among javelin throwers is alarming. Without question such injuries are very similar to those which handicap baseball pitchers and the causes may be reduced to any one of the following reasons or to a combination of them: (1) Too frequent throws for distance. (2) Failure to be warmed up properly before every throw for distance. (3) Slipping. (4) Failure to lead the throw with the elbow. I believe that 90 per cent of such injuries may be traced to this fault.

It is most gratifying to note that American manufacturers are now producing javelins which are second to none. Among the things that a thrower should note in selecting a first class javelin are: (1) A perfectly straight implement. One that will spin on its point, with a finger twist-point on the floor with no wobble. (2) A javelin which is official in accordance with the rules as to, length, weight, placing of grip, and balance. Most of the long flight javelins are so made that the point of balance is located in the fore half of the grip.

I would like to take this opportunity to compliment Mr. Walter Montgomery, who coached Vukmanic during his high school days at Mather, Pennsylvania. The fact that Vukmanic made a throw of 206 feet 10 inches as a senior in high school is a tribute to the fine work of Coach Montgomery.



THE series of progression pictures on the preceding page show Vukmanic throwing the javelin. The photographs were taken on March 14, 1939, when the ground was covered with snow. Because of the date (preseason) and the cold weather, no attempt was made to throw for distance. However, the pictures do show approximately the same form, even though the throws are easy ones. The chalk marks on the field are football markings and should not be mistaken for a javelin foul line. These pictures and the other photographs illustrating this article were taken by William W. Ullery.

The pictures on this page illustrate a throw made by Larry Bell, Miami University, at the 1938 N.C.A.A. Meet. Note the carriage of the javelin in the first picture. In the second picture the left arm is swung to the right to aid in the body twist. The fifth picture (upper right) is an especially good illustration of the gathering of full power to put into the throw. Note the position of the throwing arm, shoulder, head and feet.

Changes in High Jump Form

By Frank C. Potts
Track Coach, University of Colorado

IN a study of high jump form, styles and variations, one may easily become confused. This confusion is caused by the fact that we usually place all methods of high jumping under two classifications; the Eastern and Western styles. Prior to 1912 the high jump forms had names but were not grouped as they are now. The forms in use at that time were the straight scissors or some modification of it, such as the Sweeney, half-Sweeney, short-hook Sweeney and long-hook Sweeney, the take-off in each case being from the outside foot.

In 1912 Horine of Stanford University developed his roll form, taking off from the inside foot. This method became known as the California or Western roll. Jumpers in the Eastern States did not take up the Horine style but stayed with what they had been using. Their methods, though deviating greatly from each other, gradually came under the general classification of Eastern style. As the Western roll became more popular, new jumpers used it in different ways and all these variations became classified as the Western style. There are so many modifications of these two styles that all the most popular have been given names. Examples of the Eastern are: the Sweeney with all its variations, the true Eastern, the Larson and the Bert Nelson. Under the heading of Western style comes the Horine or original Western, the Osborne roll and possibly the barrel roll. Each man has his own peculiarities so that no two jumpers will ever jump exactly alike. However, all great high jumpers have the same fundamentals but execute them differently.

The Eastern Style

The most natural high jumping form is the straight scissors which was used by nearly all the early contenders. In the first A.A.U. meet the high jump was won at a height of 5 feet, 5 inches by an athlete using the straight scissors. Muller of California is credited with being the best high jumper using the scissors. He

cleared close to 6 feet, 4 inches many times. However, few jumpers ever got much better than 6 feet using this form.

As track and field athletics became more popular, coaches and athletes began to study form more in all events. Many interested in the high jump came to the conclusion that too much clearance height was lost in going over the crossbar upright with the scissors form, and they began developing variations from the scissors take-off. M. F. Sweeney was the first to use a form approaching what we now consider fundamentally sound. He held the world record at 6 feet, 5⅝ inches for twenty years until Horine broke it in 1912. His jump had a layout along with the spring and lift of the scissors, and it was copied by most of the jumpers for years.

Larson of Brigham Young University later developed a modified scissors form which was, and still is, considered fundamentally sound for getting the maximum height from the spring and lift put into the jump. Larson used the scissors take-off but got a layout and rolled over the bar.

The true Eastern form developed later, offering good spring and lift. When used correctly it is good for close to record heights but it is probably more difficult to master than some of the other methods because of the action over the bar. The jumper must learn a double kick of the legs to lift the center of gravity over the bar, then scissor his legs again to lift his lower hip over the bar and come down facing it. Recent exponents of this form include Spitz of New York University and Ward of Michigan.

The Western Style of High Jumping

The Western roll came into prominence in 1912 when George Horine of Stanford University broke the world record with a jump of 6 feet, 7 inches. Beeson of California, using almost the same form, broke Horine's record two years later with a jump of 6 feet, 7 5/16 inches. This method of getting over the bar was altogether different from those used previously. The jumper approaches the bar from the side, takes off from the inside foot, gets a good lift from the lead leg and arms, gets a layout over the bar, rolls his hip over the bar and lands on the take-off foot and hands. Since this style was developed only athletes using it or some variation of it have held the outdoor world record.

Harold Osborne of the University of Illinois established a world record at 6 feet, 8¼ inches, using a modified Western roll which later became known as the Osborne roll. He had the ability to ride a crossbar and roll over it in a way to keep it on the pegs. Since then high jump standards have been changed so that a bar may be displaced either forward or backward.

Walter Marty of Fresno State College in California was the first high jumper to have a world record of over 6 feet, 9 inches recognized. In a dual meet at Stanford University Marty cleared 6 feet, 9⅛ inches. He is only about 6 feet tall and making a jump 9 inches above his head seems rather remarkable. Two years after Marty established his record, David Albritton of Ohio State and Cornelius Johnson of Compton Junior College broke it with leaps of 6 feet 9¾ inches in a tie. Both were members of the 1936 Olympic team.

The best recorded jump was made by Mel Walker of Ohio State, in an international meet at Stockholm in the summer of 1937. He jumped 6 feet, 10 inches but the mark was not recognized by the I.A.A.F. The form of all these champions has been Western.

Although the barrel roll is classified as a Western style, it is so different from the other forms that many authorities look upon it as unorthodox. For this reason it will be placed in a separate classification.

The Barrel Roll

The barrel roll has been in use for some years, but prior to the rules change of 1935 the athletes using this style were greatly handicapped by having to get their feet over the bar before their heads. The A.A.U. and the N.C.A.A. changed the high jump rule so that the only requirement now is to take off on one foot. This meant that jumpers would no longer be disqualified because of the head going over the bar before the feet, as was the case under the old rules. This rule change gave all Western-style jumpers more liberty in going over the bar and was especially helpful to users of the barrel-roll form. James Stewart of Southern California used this form under the old rules with very good results, but were he jumping now he probably could get much better height.

In 1936 two new jumpers appeared in the collegiate field, both using the barrel roll. They were David Albritton of Ohio

---

AT the suggestion of Mr. Potts, illustrations previously used in the Athletic Journal are given below to show the Western and Eastern styles.

(Below)

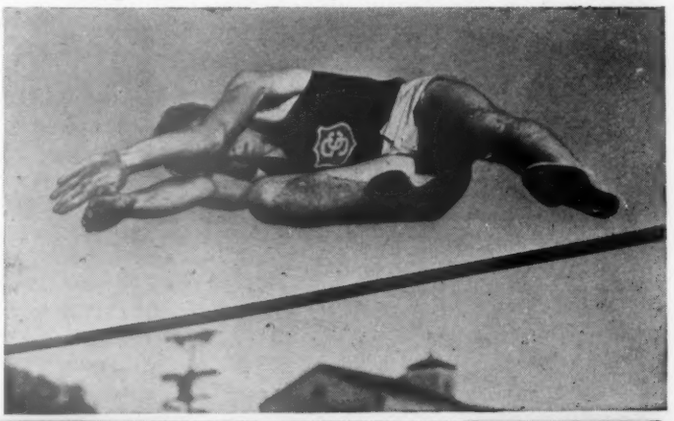
Linn Philson, Drake University, using the Eastern style. The body is forward along the thigh of the jumping leg which is cutting across and upward.

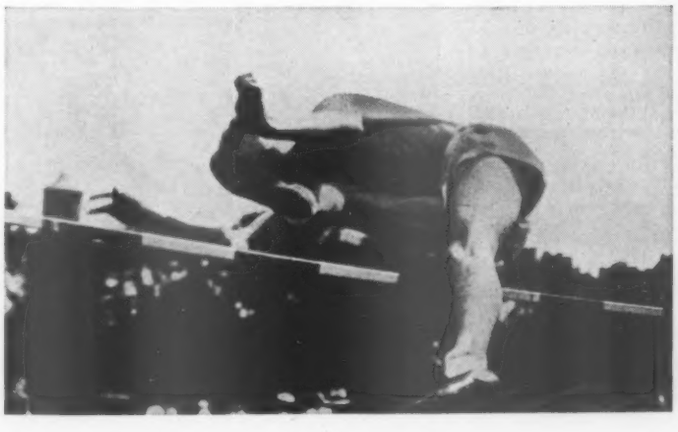
(Right)

Delos Thurber, University of Southern California, using a pure Western. It is from this position that numerous adaptations have come, one of which is shown in the illustration at the lower right, Humbert Smith of Stanford using a "gather" adaptation of the Western roll.

Illustrations of Walter Marty appeared in the March, 1939, issue.

—Editor's note.





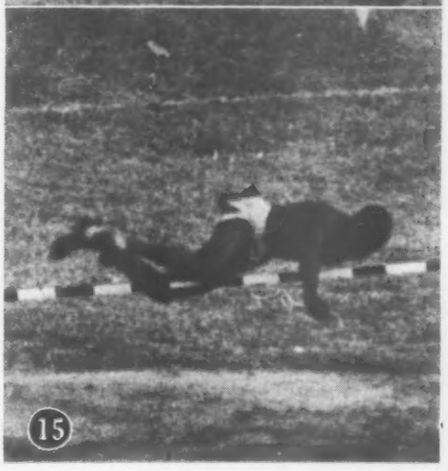
State and Gilbert Cruter of the University of Colorado and each, in his first collegiate competition, bettered the world indoor record. In a dual meet at Fort Collins, Colorado, on the afternoon of February 22nd, 1936, Cruter jumped 6 feet, 8⅞ inches, to better Bert Nelson's record by almost two inches. That night in New York, Albritton jumped 6 feet, 8 15/16 inches to beat Cruters' mark by 1/16 of an inch. For three years these two high jumpers have led the collegiate field, tying for the N.C.A.A. championship in 1937. In 1938 they set a new N.C.A.A. meet record at 6 feet, 8¾ inches in another tie. Albritton is also co-holder of the world record. Cruter had the most consistent record of any high jumper during the season of 1938, having made better than 6 feet, 8 inches four times, and better than 6 feet, 7 inches two times.

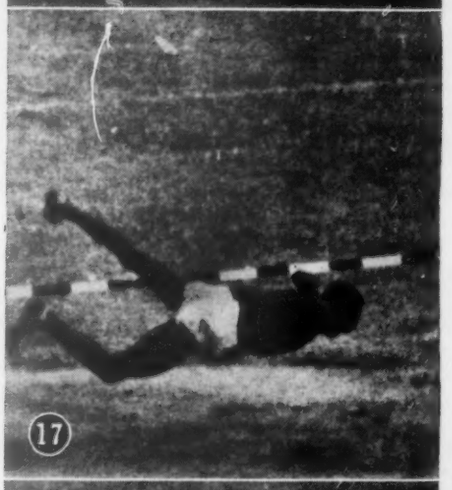
Many coaches doubt that the barrel roll is fundamentally sound as a form for getting the greatest height in proportion to the effort expended. Some maintain that these two athletes would have gone even higher had they started out as youngsters on the Western roll and worked as hard at it as they did at the form they chose. That theory, of course, can not be proven.

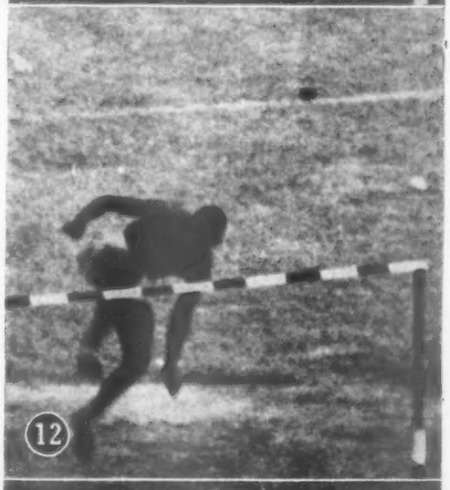
In my opinion the rule change of 1935 is causing another step in the evolution of high-jump form. A few years from now I fully expect to see more men among the top high jumpers using the barrel-roll form than there are at present.

The barrel roll as used by Cruter (shown in Illustrations 1-9) resembles the original Western roll, in approach and take-off but from there it deviates greatly. He goes over with his stomach to the bar instead of with his side. His jump has the appearance of a dive in that his head is well in advance of his hips and feet and lower than the rest of his body when he is above the bar. The weight of the upper part of his body overbalancing his rear leg along with the scissoring of the legs causes him to roll over the bar and his momentum from the run and take-off carries him on past the bar. He lands on the leading leg. When we break the action up into its dif-

(Continued on page 47)







Gilbert Cruter and David Albritton High Jumping at the 1938 N.C.A.A. Meet, Tied for First at 6 Feet, 8¾ Inches

Illustration 1—Approaching the bar from the front, Cruter cuts in at a 45-degree angle for the take-off. He has a slow, relaxed, springy run.

Illustration 2—The gather. Note the flat-footed position with the arms low and the weight of the body well over the take-off leg.

Illustration 3—The take-off. Note the powerful lift with the right leg and arms.

Illustration 4—Starting the roll.

Illustration 5—The straddle. Notice especially that the head is being well in advance of the hips and note the height of the right leg.

Illustration 6—Scissoring the legs. The down pull of the right leg helps lift the left leg and hip over the bar.

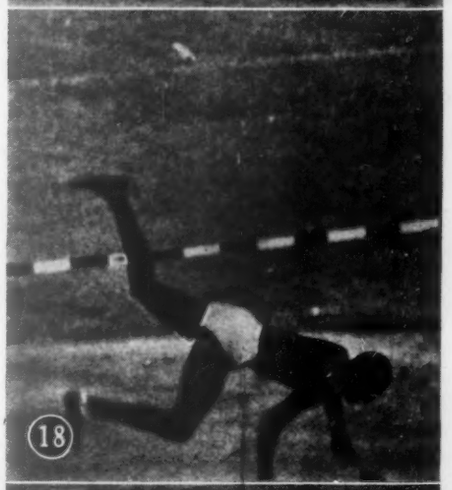
Illustration 7—The carry or sweep. The momentum obtained from the run and take-off must carry him across the bar.

Illustration 8—Over and getting ready to land.

Illustration 9—Landing on the leading leg.

Illustration 11—Note how Albritton turns his right shoulder into the bar, to help with his turn.

Illustrations 14, 15, 16—show the frog-kick of both legs as used by Albritton. He also uses a hip shimmy as a shot putter uses.



The Texas Interscholastic League Revises Rules

By R. J. Kidd
Athletic Director, Bureau of Public School Extra-Curricular Activities

THE Texas University Interscholastic League has recently announced the results of a referendum vote on some very vital issues affecting interscholastic athletic competition. The critics of the high school athletic program have stated on a number of occasions that, in their opinion, the interscholastic athletic program was wagging the educational activities of the school.

The results of the referendum indicate that the school administrations of Texas recognize football as a regular part of the athletic program, and that it should not require any more time or emphasis than is permitted other sports.

Outstanding physical educators have stated that some adjustments must be made in our high school interscholastic athletic program, if we are to keep this activity as an educational and social force in the school and community.

The following changes have been proposed by the various leaders from time to time: (1) Athletic competition in football between schools must be equalized, that is, athletic squads must be similar in size and number; (2) The amount of time devoted to spring training in football must be reduced to a reasonable period; (3) Post season football games must be eliminated; (4) The date for beginning fall football practice should be specified, to prevent long training seasons; (5) The age limit should be lowered to an age that is the equivalent to the average high school graduate and the age at which the state ceases to provide scholastic apportionment to the high school pupil. The University Interscholastic League has long recognized that competition organized in a sensible way, surrounded with proper controls, furnishes an inspiration to outstanding pupils to excel in the activity that they like to do most, and that its continuance is absolutely conditioned by these considerations.

The purpose of this presentation is to acquaint the readers with a few of the changes that have been made in the Texas University Interscholastic League football plan and eligibility rules.

The League has incorporated into its 1939 Constitution and Rules a plan whereby schools are classified for football competition on the basis of their high school enrollment. The new classification plan voted by the schools participating in football provides for four conferences in football which are to be as follows:

Conference AA.—A high school enrolling the preceding year 500 or more, is a Conference AA school. Schools with an enrollment of 450-499 may be admitted to a Conference AA district by a favorable vote of three-fourths of the members of the district.

Conference A.—A high school enrolling the preceding year less than 500 and more than 200 is a Conference A school. Schools with an enrollment of 150-199 may be admitted to a Conference A district by a favorable vote of three-fourths of the members of that district.

Conference B.—A high school enrolling the preceding year less than 200 is a Conference B school. Schools with an enrollment of 75-100 may be admitted to a Conference B district by a favorable vote of three-fourths of the members of that district.

For schools with an enrollment of less than seventy-five in high school, competition in six-man football has been provided. The overwhelming vote favoring the above classification indicates that school men generally believe that high school enrollment is one of the best criteria for setting up athletic conferences. They believe also that it is one of the best ways to equalize competition between schools.

If schools are competing against other schools of similar rank and type there is less danger of injuries, less temptation to recruit and less drive to place an overemphasis on the athletic program, because there is no inequality in the number and size of athletic squads. It means more for a small high school to defeat a larger high school than it does for a larger high school to defeat a small one. If the small school is placed in competition with the large school, it puts the pressure on the small high school from year to year and creates a tendency in the small high school to extend undue favor to boys with athletic skill. The chief offenders in the past have been small high schools that have had to meet large schools in football competition. The local civic clubs and other organizations have attempted to use the high school athletic program as a publicity project. The result is that competition gets outside the jurisdiction of school authorities and the general educational policies of the athletic program are lost.

Beginning with the school term of 1940-41, the League has lowered the age limit from nineteen to eighteen years. This will make the age rule coincide with the scholastic rule of the State Department of Education. The State provides scholastic apportionment for the child until he reaches his eighteenth birthday. Thus the athletic program will be reserved for what the State recognizes as the bona fide student. Retarded and over-age boys will not monopolize the honors that go to those winning a place on the high school football team.

A second purpose of this rule is to equalize competition between the eleventh and twelfth grade school systems in Texas. By 1940 there will be several hundred high schools in Texas that will operate on the twelve-year plan.

When the eighteen-year age rule becomes effective, the League will abolish the eight-semester rule and the four-year participation rule. This policy is based on the theory that a pupil should be eligible for the extra-curricular program so long as he is a bona fide high school pupil and meets the requirements of the other eligibility rules.

During the spring of 1938 the Texas High School Football Coaches Association presented to its membership the following question: "Do you favor September first the date to open fall practice?" 203 voted *yes* and 94 voted *no*. By a vote of two to one the coaches expressed themselves as in favor of such a rule. In the recent referendum this matter was put to a vote of the school executives.

A second question that was presented to the membership for an expression had to do with the limitation of spring football practice. At the May, 1938, Extra Curricular Conference at Austin the superintendents and principals by an overwhelming majority voted in favor of abolishing spring training.

The other issues presented on the ballot had been agitated and discussed for several years.

The following ballot was presented to the 700 football schools on January 2, 1939. Each school was allowed to vote:

Ballot No. 1.—The State Executive Committee may, upon unanimous recommendation of the committee of any football district, admit a school from a lower conference to the said district, such transfers, if any, to be made on a yearly basis;

(Continued on page 46)

Playing the Outfield

By Lew Fonseca

THE boy who aspires to a post in the outfield has one major principle that he must observe at all times if he is to become a successful ball player. It is this: *be on your toes every minute of the game and start for the ball with the crack of the bat.* It is the most important single piece of advice that I can give you, and this is the reason. Because outfielders have comparatively few chances to accept in a game, and because they are stationed so far from the biggest portion of action, they are apt to lose their interest in the play and be caught napping when the chance comes. So I repeat, *stay alert and be ready when that chance does come.*

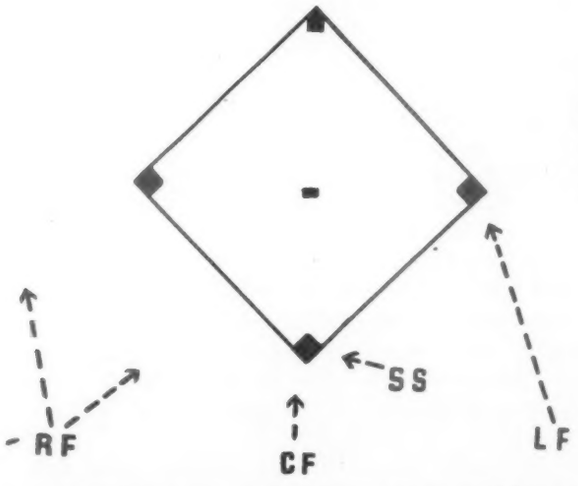
A wise outfielder will study the opposing batsmen and learn their batting habits. When he learns to gauge them properly, to know whether they hit to the right or left, to know how they hit a curve and a fast ball, and to know their various little oddities, he will be able to play his position accordingly and catch many a ball that would otherwise go for a base hit.

Now then, you are in your position on your toes, ready to accept your chance. Use a stance like an infielder for quick starts and *always play the ball—never allow it to play you.* Great outfielders often make difficult chances look easy, simply because they get the jump on the ball.

On ground balls come in fast and keep in front of the ball. Get back of fly balls, whenever possible, and try to catch them above the belt. Never reach forward with stiff arms and *always give with the ball.* If you have been on your toes and have been following the play on the diamond as you should, you will have your play in mind as you field the ball and will know to which base to throw. Try to remember this; *it is so important, yet many outfielders throw to the wrong base.*

Try to make every catch so to be in position for a quick throw to the infield with no loss of time. Always throw overhand and keep the ball low when throwing to any base. Throw it in on one bound. This makes it easier for the infielder to handle, and the ball travels faster when thrown in this manner.

Always help the fielder alongside of you on every play. His eyes and attention are focused on the ball that he is fielding. *Make use of your voice* and tell him what is going on on the bases. *Back him up on the play, if necessary, and always back up the infielders on ground balls.*



This diagram, reprinted from the Chicago Park District baseball manual, shows how outfielders should back up the plays in the infield.

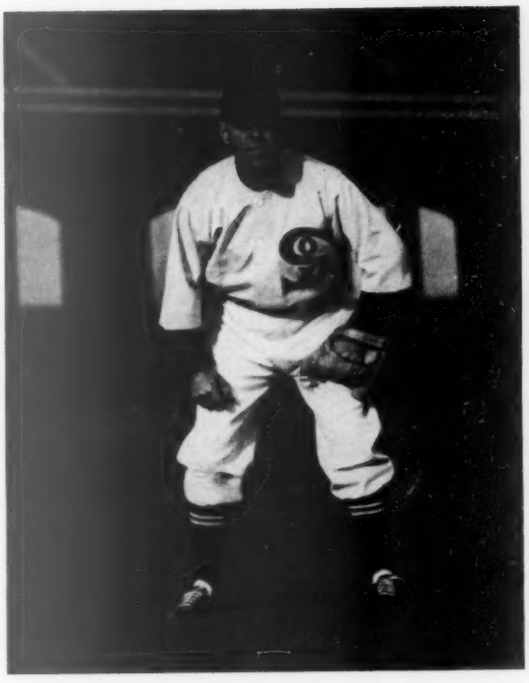


Illustration 1

Illustration 2

Illustration 3 **Illustration 4**

Illustration 1 shows an alert stance for an outfielder. On his toes with his hands off the knees, he is in position for a quick start.

Illustration 2 shows the correct way for fielding a ground ball.

Illustration 3 shows the most natural way of handling a fly ball. This way permits an opportunity for the player to recover a fumble.

Illustration 4 shows another way of handling a fly ball, as used by some players.

IN the issues of last spring and in preceding numbers this year the following articles on baseball have appeared: pitching fundamentals; play of the second baseman and shortstop; analyzing the players' hitting; throwing; development of the schoolboy pitcher; development of the schoolboy catcher and how to play third base. Play of the outfield, presented in this issue completes the series on fundamental play. A few copies of these articles are available for those recent subscribers who may have missed the earlier articles.

The ATHLETIC JOURNAL

Nation-Wide Amateur Athletics

Vol. XIX April, 1939 No. 8

Published by
THE ATHLETIC JOURNAL PUBLISHING CO.
6858 Glenwood Avenue
Chicago, Illinois

JOHN L. GRIFFITH, Editor

Track and Field Athletics

APRIL is the month when most of the important college relay meets are held. These meets are important, not only because they are popular with the athletes and the public alike but also because they tend to stimulate interest in track and field athletics at the beginning of the outdoor season.

The promoters of the relay meets have rendered a fine service to track by running meets off on time schedules, thus avoiding tedious waits between events. Henry Schulte years ago called attention to the fact that on a stage filled with actors and actresses, the spotlight is always focused on the main performers. If it were otherwise, the audience would perhaps not enjoy the plays presented as much as they now do. In the relay meets the attention of the spectators is focused on the most exciting contests namely, the relay races themselves in all of our athletic programs. By running the meets off on time and by playing up the important events, the meet promoters have established a precedent that has been generally followed by the high school and college track coaches throughout the country.

That track has not appealed to public interest in the same measure, that some of the team games have, is to be regretted. We have no finer sport than track and field competitions. It is sound to insist that sports events are conducted not for the spectators but for the benefit of the contestants. This is true and yet if trips are to be taken and meets financed someone must pay the bill. If the spectators enjoy track and field athletics to the extent of filling the stands at the important meets this, at least, helps to solve the financial problem. It is our opinion that track and field meets can be conducted without detracting from the pleasure of the competitors by providing good entertainment for the spectators.

The American people like a winner and they idolize a champion, consequently they are sometimes prone to feel that, if the athletes entered in a given meet are not capable of breaking records, the meet in itself will be uninteresting. The coaches, however, know that a closely contested mile-relay race or 100-yard dash run in slow time is far more interesting to watch than a mile run, let us say, in which one man may perhaps run the distance in 4:15 or better with the other runners fifty yards or more behind him. Perhaps we can do something in educating sport lovers, by pointing out how they can get the most pleasure out of watching a race or a field event.

Texas Leads the Way

WE invite the attention of our readers to the article in this issue which relates the action taken recently by the school men of Texas regarding matters which vitally affect interscholastic and, we might say as well, intercollegiate athletics.

There are two points especially that stand out in the referendum vote to which we desire to call especial attention. First, the school administrators in Texas, very properly we think, have recognized the principle of equal competition as shown by their reaction to the various questions submitted by the Texas University Interscholastic League officials. Certainly it is in the interests of equal competition that schools of similar size should compete among themselves. Reducing the time spent in spring football, or at least agreeing to the amount of time that is to be spent in spring training, is in the interests of equal competition. Again, post season games fall in this category. If one team were to play twelve or fourteen games, players on this team would gain more game experience than would the players who made up a team that played an eight-game schedule.

It is only fair and just that all teams should agree not to start training before a certain date. This is desirable not only from the standpoint of equal competition but also in the interests of the boys.

The other point to which we want especially to call attention is the announced attempt on the part of the Texas school men to keep the administration of school athletics in the hands of school authorities. There is a tendency in some quarters to commercialize both school and college football. The educational leaders may make mistakes now and then in their administration of athletics but we know of no group better qualified to conserve the interests of the schools and colleges than the men who have the responsibility of administering the whole program of their institutions.

The writer of this editorial is not an alarmist but he feels definitely that the schools and colleges must co-operate in an endeavor to maintain their athletics on a non-paid-player basis and to prevent excesses which, if allowed to go unchecked, will ultimately work to the detriment of amateur football. Therefore, we are pleased to join with others in congratulating the officers of the Texas University Interscholastic League and the high school men of the state in their decision to work for the improvement of interscholastic athletics in the great state of Texas.

STOP RIB INJURIES

THE R P 2 RIB SUPPORTER

Is the Answer

It offers maximum PROTECTION, stays in POSITION on account of the fashioned ELASTIC foundation; no shoulder straps or tight straps necessary to hold it in position. Does not interfere with BREATHING of player as the elastic foundation flexes with player's breathing, yet holds PROTECTOR securely in position.

Injuries to lower ribs should be eliminated by equipping your team with R P 2 BLUE RIBBON RIB SUPPORTER. Further, on account of the elastic foundation it affords support to abdominal and back muscles.

FIBRE BUFFERS are removable yet there is the protection of the Sponge PAD. Sizes Small, Medium, Large. Your local Sporting Goods Store can supply you at $3.75 each.

We are also manufacturers of a complete line of BLUE RIBBON ATHLETIC SUPPORTERS for all SPORTS and GAMES. We weave all the elastic webs used in our supporters, and these webs are so designed as to outwear any other supporter.

Try our supporters, especially the rib supporter, during spring practice and you will never be without them.

Your inquiries solicited.

BENNETT-LANDON WEB COMPANY, INC.

Manufacturers of

ATHLETIC ELASTIC AND SURGICAL ELASTIC SUPPORTERS

2430-38 North Oakley Avenue

CHICAGO

How We Maintain Good Turf on Athletic Fields in Pennsylvania

By Fred V. Grau
Extension Agronomist, Pennsylvania State College

YOUR question of "How We Maintain Good Turf on Athletic Fields in Pennsylvania" comes to me at a most opportune time. We have just prepared for distribution the first of several proposed circulars on Care of the Athletic Field. We feel that by giving assistance to caretakers of sports turf it will be possible to safeguard further the health of our young people who use these areas for recreation. A deep cushion of resilient turf is a major factor in reducing injuries suffered during practice and play. True it is that the old-timers played on bare clay fields when broken bones and stone bruises were the marks of a warrior on the field. But these decorations are expensive and unnecessary. Today the demand is for a deep ground cover of good turf that can stand the punishment of severe play and protect the players from injuries.

Careful planning in building a new field is the best insurance for building a good turf and for keeping it in condition over a period of years. Sub-drainage and surface drainage are essentials that are frequently overlooked. Grass roots need water but they also need air. When drainage is poor and rainfall is high, the grass roots may quickly be smothered or drowned. Water-soaked soil becomes puddled when stirred. Puddling breaks down the crumb structure of soil which facilitates air and water movement, air is excluded by the retained water and the smothered grass roots come to the surface where they are easily kicked out by the players.

For best results in establishing subdrainage, a qualified soils' man and a drainage engineer should be consulted to determine the most effective method of tiling. No two fields are exactly alike in soil texture and other characteristics. Some soils do not need artificial drainage due to their porous character.

Good surface drainage to remove excess water quickly is facilitated by establishing a center crown of twelve to fifteen inches with a sodded shallow ditch outside the side lines to carry the water to sumps or storm sewers. To the spectator and to the player alike, a 12-inch crown actually looks level, but a perfectly level field appears dished. Pockets which hold water are ruinous to turf.

The preparation of the seed bed for establishing the turf is too often rushed through to get the field in play as quickly as possible. As a result, the finished product is so inferior that several times the original cost may be spent for continual repair.

The sub-surface fill is usually a common clayey subsoil which is strongly acid and inclined to be sticky and impervious to water. An effective method of alleviating this condition is to spread a 2 to 3-inch layer of slag or cinders on the fill, and disk or harrow them in until they are mixed with the soil, then roll with a medium-weight roller. One inch of slag over a gridiron (about 1¼ acres) requires about 160 cubic yards of material, or approximately 500 cubic yards for a layer three inches thick. Due to the lack of funds this procedure is not followed in many cases but it represents a procedure which produces excellent results.

Selection of the topsoil is important. Clean rich topsoil is hard to find. Ordinary topsoil often brings in myriads of weeds which make maintenance costs soar. Sandy loam topsoil represents a nearly ideal soil for turf since it allows free drainage of moisture, is less inclined to bake and to get hard than clay soil, and permits deep rooting of the grasses. Six inches should be the minimum depth of topsoil on the field,—eight to ten inches are much better. This must often be tempered by the local source of supply and the funds at hand.

Inferior topsoil is by no means acceptable but, when none other is available, it sometimes must be used. In this case the preparation of the seed bed must be made to take into account the quality of the topsoil.

In preparing the seed bed after the topsoil has settled there are four essentials. Each is like the wheel of a car, anyone of which if left off makes the going difficult. These wheels are lime, organic matter, fertilizer, and a good seed bed.

Acid soils make fertilizers unavailable and poison the roots of most grass plants. Lime neutralizes the acidity and promotes the growth of grasses by making fertilizers more available. To know *how much* lime is needed, a soil test should be made. This is done free of charge at the county agent's office. Any form of lime may be used but ground limestone is usually preferred because it has no caustic action and an oversupply causes no difficulties but gradually becomes available. The usual rate of application is three to four tons for the gridiron.

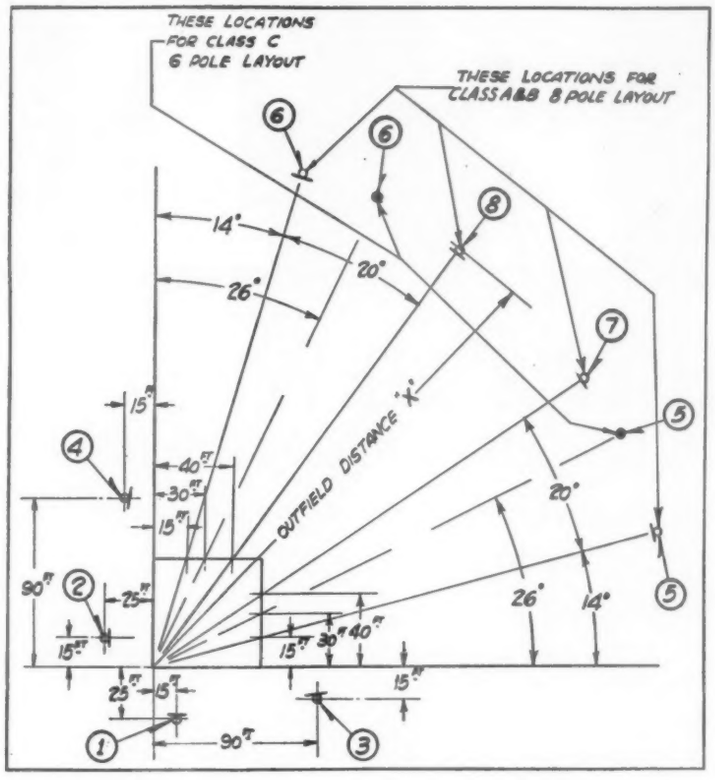
The lime is best worked in with the organic matter when it is used. Common sources of organic matter are commercial humus (peat) and mushroom soil. The mushroom soil contains some clay and the organic content is low and quickly disappears in the soil. Peat is much longer-lasting in the soil and more desirable for adding organic matter. The amount to be added will depend upon the quality of the topsoil but for ordinary good soil one inch of peat on the surface worked in to a depth of three to four inches is sufficient to promote free air and water circulation, and to produce a slightly resilient surface. The effects of fertilizers last longer when there is a good supply of organic matter in the soil, and the soil dries out less quickly.

After the lime and organic matter are worked in, the question of fertilizing and seeding will depend upon the season. The best seedings are made in late August and early September (mid-August at higher altitudes). Very early spring seedings have the next best chance, and June seedings the poorest. At any rate, the fertilizer should be applied and harrowed in a few days before seeding. Here in Pennsylvania we need to use a liberal supply of phosphorus to overcome the natural deficiency; hence, we use fertilizer ratios of 1-2-1, 1-3-1 and sometimes 1-4-1. Whereas 5-10-5 and 4-12-4 continue to be popular grass fertilizers, some are using double-strength and triple-strength goods, such as 15-30-15 and 8-24-8 at proportionate rates. A popular mixture is equal parts cottonseed meal or tankage and 4-16-4. This yields about a 5-10-3 or 5-12-3 with over half of the nitrogen coming from an organic nitrogen carrier. The organic nitrogen becomes available upon the bacterial decomposition of the material in the soil, thus being made more gradually available to the grass plants over a relatively long period of time.

When 5-10-5, 5-10-3, or 4-12-4 are used, one-half ton is usually needed for the gridiron. Where the soil is poor to start with this may be increased to 1300 to 1500 pounds. With 8-24-8, 500 pounds contain the same plant food as 1000 pounds of 4-12-4. Similarly, 333 pounds of 15-30-15 is equivalent to 1000 pounds of 5-10-5. There are any number of fertilizers and ratios on the market but these named have been the most popular and have given consistently good results.

The matter of preparing the seed bed

(Continued on page 42)



Floodlighting Practice for a Sports Field

The Softball Field

By E. B. Karns
Illuminating Engineer

THIS is the first of a series of articles presenting information on athletic field floodlighting for night sports. Each article will be general in nature and deal with the fundamental aspects of athletic field lighting.

All recommendations used are those proposed by The National Electrical Manufacturers Association and the Illuminating Engineering Society who have, after careful study, established certain basic methods and standards.

Being basic, the recommendations are therefore subject to alteration to meet local requirements and conditions. They are not necessarily the opinion or recommendation of any one manufacturer or engineer but are the practices patterned and agreed upon by a committee of N.E.M.A. made up of some of the foremost sports field floodlighting authorities today.

Softball Field Lighting

The success of a softball field floodlighting installation depends upon the quality as well as upon the quantity of light, the avoidance of glare and the absence of shadows. This can be accomplished only by proper equipment correctly installed. The attempt to save by skimping on the installation may mean the difference between a good lighting job and a poor one. A poor lighting job has never yet been known to pay off at a profit.

The following plans are for *adequate* lighting of the three types of softball field. Class A and B installations are recommended for fast league play and Class C for general play and playground fields. All plans are suitable for either 45 or 60-foot diamonds.

Poles

The location of floodlight poles in relation to the playing field as shown in the accompanying diagram has been found, by experience, to be the most effective for this type of lighting.

Steel poles and underground wiring usually represent the most desirable practice from the standpoint of appearance and

(Continued on page 34)

CLASS A

OUTFIELD DISTANCE X	UP TO 150′		150′ TO 200′			200′ TO 240′			240′ TO 280′		
Pole Number	1, 2, 5, 6, 7, 8	3, 4	1, 2	3, 4	5, 6, 7, 8	1, 2	3, 4	5, 6, 7, 8	1, 2	3, 4	5, 6, 7, 8
Mounting	40′	40′	40′	40′	50′	40′	40′	60′	40′	40′	60′
No. of 1500-watt units per pole	2	3	2	4	3	3	5	5	4	8	6
Total Units	18			24			36			48	
Total KW	31			41			63			84	

NOTE: The above wattages are based on operation of lamps at 10 per cent over-voltage which is recommended to obtain 35 per cent increase in light output. However, if it is intended to operate installation more than 200 hours per year, lamps should only be operated 5 per cent over-voltage.

CLASS B

OUTFIELD DISTANCE X	150′ TO 200′			200′ TO 240′			240′ TO 280′		
Pole Number	1, 2	3, 4	5, 6, 7, 8	1, 2	3, 4	5, 6, 7, 8	1, 2	3, 4	5, 6, 7, 8
Mounting Height	40′	40′	50′	40′	40′	60′	40′	40′	60′
No. of 1500-watt units per pole	2	3	2	2	4	3	3	6	4
Total Units		18			24			34	
Total KW		31			41			59	

NOTE: The above wattages are based on operation of lamps at 10 per cent over-voltage which is recommended to obtain 35 per cent increase in light output. However, if it is intended to operate installation more than 200 hours per year, lamps should only be operated 5 per cent over-voltage.

SOFT

WHAT'S NEW · · ·

including the Pre-Vulcanized Ball and the revolutionary Snare-M Feature in Mitts and Gloves

It's Wilson Today in Sports Equipment! You hear that statement everywhere. And you see it *proved again and again,* wherever sports are played, including Softball.

We illustrate, for example, the new Wilson Softball Gloves and Mitts with the exclusive "Snare-M" feature. It's revolutionary! Because of this new-type construction the hand grips, automatically, the instant the ball strikes the palm, while the pocket formed with the distinctive outside heel padding tends to *hold the ball.* Comes in three styles, two of which are illustrated.

In addition, we feature the Wilson Pre-Vulcanized Softball, the most important development in softball history. This improved construction produces greater adhesion between cover and core. Insures two to three times longer life both of shape and liveliness. Permits enough flexibility to give the pitcher the right *feel* of the ball. Cover does not come loose. Pre-Vulcanizing keeps the kapok from drying out, keeps ball fresh even in dry climates.

See your Wilson dealer for all your needs in Softball and in all other sports, or write for free catalog. Wilson Sporting Goods Co., Chicago, New York and other leading cities.

H42—*Wilson Official Softball—12 inch.* Official for use in all games played under the rules and regulations of the Playground Rules Committee of the Playground and Recreation Association of America.

H42N—*For night play*—made with a cover of finest grade, specially tanned, lustrous, *washable* white horsehide. Fine visibility under flood lights.

No. 596—*Wilson Snare-M Model Baseman's Mitt.* Left or right hand.

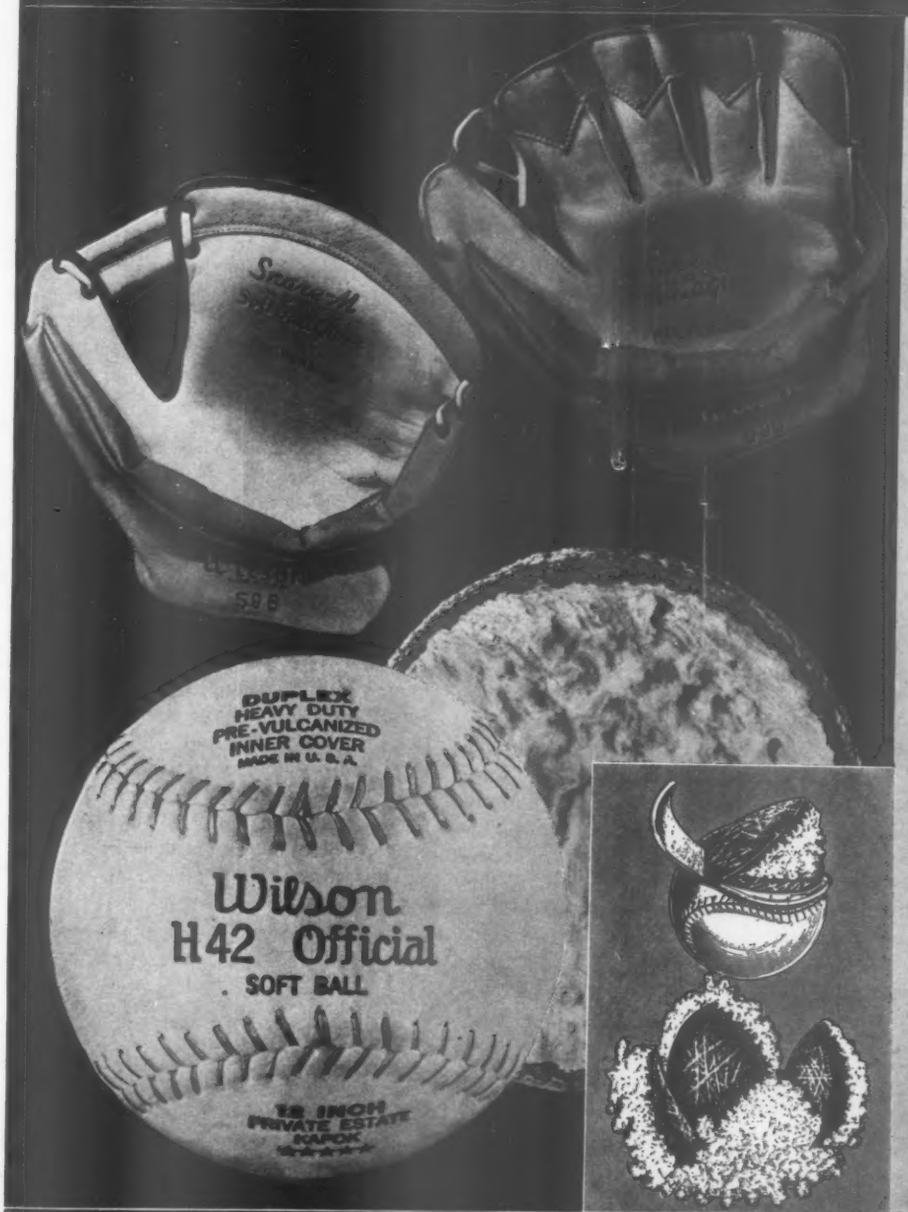
No. 690—*Wilson Snare-M Model Fielder's Glove.* Left or right hand.

Girls' Softball Uniforms

Complete uniforms for girl players including styles with jerseys and shorts, middy blouses and bloomerettes. Smart designs and color combinations beautifully tailored. *Illustrated,* Pull-over Blouse B-142 and Bloomerettes B-175. Catalog and information sent upon request.

IT'S WILSON TODAY IN SPORTS EQUIPMENT

BALL



Wilson

SOFTBALL EQUIPMENT

Men's Softball Uniforms

Wilson Official Softball apparel has been approved for wear in all official championship games. Smartly styled, sensibly designed and well tailored.

Illustrated, Pants, SB38, Jockey Satin. Shirt, SB28, Jockey Satin. Cap, SB48, Jockey Satin.

Also Jerseys, Sport Coats, Slacks, Belts, Hose, etc. Write for catalog.

Are College Athletics Commercial and Is It Necessary to Subsidize Athletes to Produce a Winning Team?

By John L. Griffith

INTERCOLLEGIATE sports have been accepted by the administrators of the colleges and universities as a part of the educational program. They have grown from an inconspicuous extra-curricular activity until now some of the antagonists of intercollegiate athletics maintain that they are running the colleges. Such attitudes are the result of an unbalanced relationship. In other words, if intercollegiate athletics are kept in balance with the rest of the curriculum, there can be no charge of over-emphasis or commercialization.

During the period of growth, there have been many violent pains, some of which are more or less acute at present, but as is the case with all rapidly growing things, the pains will disappear when maturity is reached. We may say that sports, especially football, are just on the threshold of maturity. Now is the time for serious, intelligent consideration of the problems which we face.

General Palmer E. Pierce has made the statement that the size of the gate receipts does not indicate that intercollegiate sports are being over-emphasized or perverted. The real problem in his mind is "what is done with the receipts." When any part of the gate reaches the athletes through slush funds, athletic scholarships, or through any other channel, then the funds are being misused. There are good and bad scholarships and we must at all times differentiate between the two. Funds available for all students should not be withheld from students simply because they are athletes, and, by the same token special funds available for athletes only are not in keeping with the code of good sportsmanship.

This month we are considering Ohio State. That it comes within General Pierce's interpretation of the proper use of gate receipts is borne out by many facts. Since the institution under consideration is a state university, there is not great need for scholarships or loan funds. Both are available in a limited way, however. But not one athlete held a scholarship in 1937-38. Only four athletes used the loan funds administered by the dean of men, their total borrowings amounting to $269.00. All of these notes are payable before 1940.

Ohio State University is the fourth largest state supported university, and the sixth largest university in the entire United States, having an enrollment of 17,411 (including the summer quarter) during the year 1937-38. The same regular academic year saw 14,193 enrolled in the ten colleges and the graduate school which make up the university.

Organization, Offerings, and Ranking

These colleges, each under the administration of a dean and college faculty are: Agriculture (including School of Home Economics), Arts and Sciences (including School of Journalism and School of Optometry), Commerce and Administration (including School of Social Administration), Dentistry, Education (including School of Nursing), Engineering, Law, Medicine, Pharmacy and Veterinary Medicine. The breadth of the university's offerings, the calibre of its faculty, the excellence of its equipment qualify Ohio State for membership in the Association of American Universities, which is composed of the thirty-two outstanding Universities in the United States and Canada.

Athletic Ranking

Without any attempt to rate any other college or university it would seem to be a generally accepted belief that Ohio State probably would also rank as one of the thirty-two more prominent universities from the standpoint of excellence in intercollegiate athletic competition. Surely its football record over the last five years (29 games won, 10 lost and 1 tied—for a percentage of .746) coupled with its annually outstanding track, baseball, basketball and swimming teams would indicate the truth of this assumption. During these past five years (1934 through 1938) its football teams have played before a total of 1,799,740, an average of 44,993 spectators at each game. It is logical to conclude that Ohio State's athletic prowess — more, rather than less—parallels its size and scholastic rankings.

Residence of Athletes

Are its athletes recruited? A brief study of the residence of the entire university compared with the residence of the members of the varsity football teams may shed light on this question. The school year 1937-38 presents a typical Ohio State enrollment.

	Students whose homes are in Ohio	*Non-Ohio Residents*	*Total*
Entire year	15,890	1,521	17,411
Academic year	12,991	1,202	14,193

The non-resident group, 9 per cent, is composed of young men and women from all forty-eight states, the District of Columbia, and twenty foreign countries. However, six states alone (New York, Pennsylvania, Indiana, West Virginia, New Jersey and Illinois—the size of the delegations in that order) sent 746 of the 1,202 total non-residents. In other words, the State of Ohio not only supports the university financially—it also supplies 91 per cent of the students enrolled.

The varsity football squad shows a striking similarity:

Year	*Total No. of Players*	*No. of Non-residents of Ohio*	
1934	55	1	—2%
1935	51	2	—4%
1936	62	4	—6½%
1937	61	4	—6½%
1938	63	3	—4%

In each of these years the non-resident football men, *without exception,* came from states listed among the first six in supplying the bulk of the non-resident enrollment of the university.

Recruiting, Subsidizing, Proselyting

Again the question is raised—are the athletes recruited? If that question includes the query, "Are Ohio State alumni and students endeavoring to offset the exodus of outstanding Ohio boys, by pointing out to them the advantages of their own great State University?", the answer is emphatically "Yes!" If it implies "Are the Ohio State athletes *subsidized,*" the answer is just as emphatically "No!"

The Carnegie Foundation's famous Bul-

Rawlings has Coach and Player Approval!

Football Equipment for 1939 by Rawlings is eliciting much favorable comment and approval wherever shown. Nothing has been spared to make it the games' finest. Coaches and players alike appreciate the sound protective features, staunch construction, top quality materials, and skilled workmanship embodied in it. As one coach put it "It must be seen to be appreciated." Arrange for a showing with the Rawlings Dealer in your territory, he will gladly assist you in making the proper selection for your team. Order now for early delivery.

STREAM-LINED UNITS

The appeal of color is sure to reflect itself in your team's appearance and give them that added poise that comes with the feeling of being well dressed. It also steps up gate receipts as spectators enjoy the "show" as well as the game. In response to this widespread demand Rawlings has styled a complete range of colorful, streamlined uniforms (Jersey and Shell) that will swing you definitely from the drab uniforms of past years. Don't fail to see them.

RAWLINGS OFFICIAL

IS

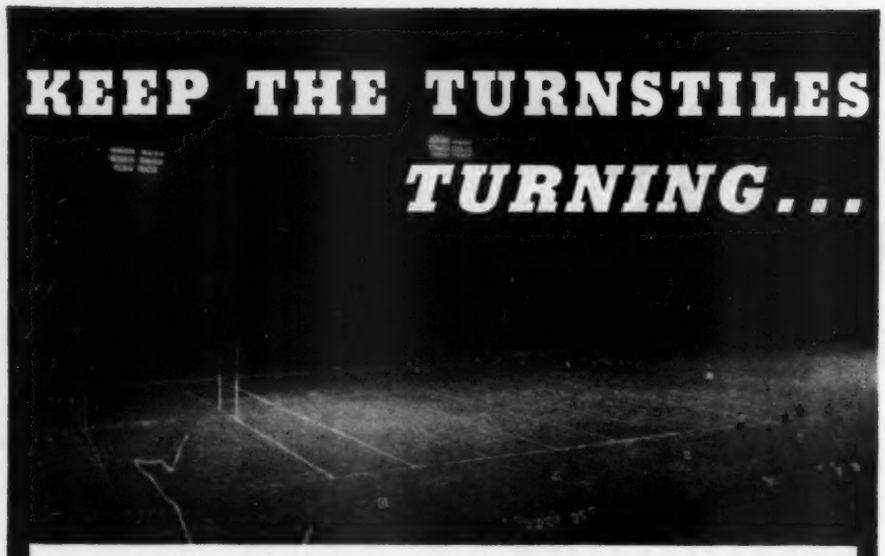
OFFICIAL

OFFICIAL FOOTBALLS Nos. 5RX, 5BJ, CS5 are built with minimum circumference small axis, and maximum length long axis. They conform exactly to the official specifications as adopted by the Football Rules Committee of the N. C. A. A.

SIX-MAN FOOTBALL

Rawlings Line includes many popular numbers for this branch of the Grid Game. Items that afford desired protection, plus appearance and stamina. They are reasonably priced too so that any team can enjoy "Rawlings Quality." Ask to see—F31, F31S F42 and F51 Helmets—CP15, FP3, CP10, CP5, and CP2 Shoulder Pads—Converse six-man shoe—Score Book—Manuals, etc.

ST. LOUIS *Rawlings* MISSOURI



THOUSANDS THRILLED! Whenever floodlights have been installed for nighttime sports, surveys indicate attendance has increased beyond all expectations. Healthful hours of recreation and entertainment are open to thousands upon thousands who attend classes or work by day. Such increased gate receipts put athletics on a paying basis.

Westinghouse floodlights are designed for every type of sports application including football, softball, tennis and swimming pools. Call your local Westinghouse Distributor, or address Westinghouse Electric & Manufacturing Company, Lighting Div., Edgewater Park, Cleveland, O.

Westinghouse Lighting Equipment

MEDART *Telescopic* **GYM SEATS**

Safe to use and safe to operate . . . Employs the modern telescopic principle of operation . . . Occupies minimum floor area when "nested" thus freeing valuable floor space for class use . . . Easily installed in existing buildings as well as in new gymnasiums . . . One hundred per cent "Medart" built by the oldest manufacturer of gymnasium apparatus, basketball backstops, lockers, lockerobes, playground apparatus, and pool equipment.

Write for Catalog GS-2

FRED MEDART MANUFACTURING CO.
3542 DEKALB ST. . . . . ST. LOUIS, MO.

letin 26 defines recruiting as the solicitation of high school athletes with a view of inducing them to attend a certain college or university. Subsidizing is the term for the provision of financial or other assistance to athletes in consideration for their services on college teams. Proselyting is the solicitation of athletes who have already established college affiliation. This bulletin further states that "the motivating element in both recruiting and proselyting is the subsidy." Therefore, if there is no subsidy nor *promise* of subsidy, recruiting becomes an honorable endeavor.

This then is the type of recruiting which is done by the alumni, students and friends of Ohio State. True its athletes in many instances have part time jobs—jobs in which they give value received. The director of the Ohio State student employment office, William S. Guthrie, in his records of the year 1937-1938, shows that 3,061 men, by actual count, earned part or all of their expenses while attending the university. He further estimates that 1,750 more had some sort of employment on which it was not possible to procure records. This total, 4,811 men working in a male enrollment of 9,462 is slightly in excess of 50 per cent. Using the varsity football men for comparison, we find that the 1938 squad of sixty-three men had thirty-three (54 per cent) who were working on definite jobs. This is not far out of line, nor are the general employment figures of the university at great variance with three surveys of this field. In 1930 Dr. A. J. Klein made a survey of the Land Grant Colleges which showed 43 per cent of the male students working. The United States Office of Education reported in 1929 that 46 per cent of the men in 763 schools were employed part time. The North Central Association of Colleges and Secondary Schools, as late as 1936, estimated that 45 per cent of the men enrolled in the forty-six member institutions earned their way.

Checking on the jobs performed by the thirty-three varsity football men, we find a wide range of occupations,—general laborer, PBX telephone operator, mimeograph operator, file clerk, librarian's assistant, janitor, salesman, elevator operator, draftsman, gas station attendant, night watchman, messenger, photostat operator, dishwasher, waiter and mailing room worker. These are the jobs that the thirty-three boys held and it is readily seen that the work could not be done in absentia.

Gate Receipts and Where They Go

Since the completion of the Ohio stadium in 1922, the Ohio State Athletic Board has used surplus gate receipts (1) to clear the debt on that magnificent plant, (2) to build a natatorium which has three pools, (3) to construct a 36-hole golf course, (4) to build forty-eight tennis courts, (5) to rent ground for an archery golf course, (6) to improve and add ath-

letic and recreational fields adjacent to the stadium, (7) to maintain and service all intramural and recreational fields, and (8) to underwrite a portion of the salary budget for both the men's and women's physical education staffs, and much of the intramural budget for both men and women.

In capital investment and interest charges alone, football receipts have furnished $1,017,069 for the Ohio stadium and the completion of its recreational environs. More than $350,000 has been expended on the natatorium. The golf course will represent an investment of more than $250,000. The total debt of the department (1939) is $186,671.00, consisting of loans negotiated in connection with the natatorium and golf course construction.

The next unit to be added to the physical education and athletic plant is a field house. At present baseball, track and basketball teams are all forced to use makeshift winter training quarters on the state fair grounds. The new field house is being planned so that it will provide a maximum space for intramural and physical education activities as well as for intercollegiate competitive activities. Only one other Big-Ten University is without this highly necessary unit, but Ohio State proposes to go into debt no further and no sooner than is absolutely necessary.

Intramurals

Twenty-five years ago the athletic department recognized the need of providing a recreation and sports' program for the entire student body. This it did in 1913. Through the years its intramural program has grown in breadth and scope and has served as a model for scores of similar programs in colleges and universities all over the country.

Several objectives and guidance principles give direction to the intramural department staff in their efforts to be of the best service to all concerned. They are as follows:

1. Offering a variety of activities balanced between vigorous and light exercise, team and individual sports, adolescent and adult sports to meet present interests and future needs.
2. Reasonably safeguarding health by choice of activities, medical examinations, limiting participation, safety rules, good equipment and proper supervision.
3. Establishing policies consonant with the greatest good and fairness to the greatest number by equalizing competition, limiting participation to individuals below varsity caliber, and limiting participation so that more may obtain success and classification of teams and individuals according to size or ability.
4. Believing that social relations and attitudes can be developed through intra-

(Continued on page 41)

Hundreds of Leading Schools — Colleges — Universities Choose TORO

Wherever there is grass to cut or athletic fields, tracks and tennis courts to be kept in condition, there is need for Toro equipment.

In schools all over the country you will find Toros doing a good job, backed by the enthusiasm of the men who use the equipment and the men who are interested in the result of the work.

University of Idaho

•

Frank James, Supt.

Leland Stanford University

•

Edwin Van Gorder, Supt.

Northwestern University

•

Paul Bennett Tennis Coach

TRACTORS — — POWER ROLLERS

GANG MOWERS — — POWER MOWERS

Send for Our Interesting 1939 Catalog

TORO MANUFACTURING CORPORATION

MINNEAPOLIS MINNESOTA

MARK OF QUALITY
SR
THE SEAMLESS RUBBER CO., INC.
ZINC OXIDE
ATHLETIC
TAPE
12 INCHES x 10 YARDS
Developed especially for corrective and preventive strapping. Minimizes usual skin irritations caused by constant taping. Large size core for easy handling. Tape unwinds freely. Adheres instantly under all climatic conditions.
STORE ON END IN A COOL DRY PLACE
1 ROLL
SR 2570
ASSORTED CUTS
1—1" 2—1½" 4—2" x 10 YARDS
MADE BY
ADHERES INSTANTLY
under all climatic conditions.
Minimum of irritation.
Sold by Sporting Goods dealers only.
THE SEAMLESS RUBBER CO., INC.
New Haven, Conn., U. S. A.

Kicking Stars Are Made in the Spring

By Edward J. Storey
High School, Mamaroneck, New York

IF you want good kicking next fall, now is the time to get started. Get the boys out on the field, booting the old ball, or you will pile up the *statistics*, while your major opponent with a good kicker gets the *touchdowns*.

The threat of a quick kick will always keep a safety man back far enough to be out of running plays. An exceptional kicker will force the defense to keep two men back, and it would have to be a poor offense that could not get going against a nine-man defense.

Wallace Wade of Duke fame believes that ten yards gained by smart kicking is much more valuable than ten yards gained by rushing. All of us, who have been taught kicking strategy by "the old Master," Leroy Mills, agree very heartily with Mr. Wade.

Many games have been lost because of the inability of a team to use the kicking game. Mr. Mills believed that the smart coach should use kicking to put his team in position to drive for the touchdown. He believed that this drive should start not farther away than the opponent's thirty-yard line. Statistics seem to prove his contention. It is sound strategy. He made the most detailed study of the kicking possibilities ever made in the game of football.

All that I know about the kicking game is the result of my association over a period of ten years with Mr. Mills. My own coaching experience has proved to me the expertness of his judgment, and any coach who will follow his principles will save his players much battering, make the game more fun for them, and win games that he might have lost.

Mills discovered many fundamental facts about football, that are missed by coaches as they plan their campaigns or their season's strategy. For instance, he made a statistical study of the kicking of the Army, and their opponents over a two-year period to see what happened on their punts. He found out that the average team punts eight to ten times during a game. He found also that the average distance of these kicks is thirty-six yards. The average run-back by defensive men of these thirty-six-yard kicks is seventeen yards. This gives the kicking team a net gain of nineteen yards for the punt. Recent statistics will not agree with these records, since Mr. Mills spent considerable time coaching the kickers at the Army. You may remember *Fields* and *Buckler*.

Check up on your own statistics for last season and see what sort of an average your kickers piled up. Add up all of the good and bad kicks counting only the effective yardage on the field of play and you will get a surprise. Now, check up and see how much run-back yardage you gave those other teams on your kicks. Do not blame the run-back on your ends either. It is your kicking that is to blame for the run-back, not the ends.

What chance do you think there is of a defensive quarterback running for a touchdown on a punt that is kicked directly to him? It is much better than you think. Do not forget that the other team places its best punt catcher, and broken field runner in that position. Well, the chances are one in fifty that he will get the touchdown. Would you hit a fly ball to Di Maggio and hope that he would miss it? Then, why punt directly into a safety man's hands? You can teach your kickers to keep that ball away from opposing safety men. You can roll it on the ground to them too.

The game of football starts on the 30-yard line, so we might start there. You can place your kick-off too! The ordinary kick-off that goes down over the goal line is brought back to the 30-yard line, or automatically to the 20-yard line. The short kick averages to end up on the 30-yard line. That is the mathematical line where the many varying forces in football seem to average up on the kick-off play. Some teams are kicking out of bounds, but that is a defeatist kind of play. The most successful kick-off is one, in which the ball just rises high enough to go over the linemen and then rolls. You will average putting your opponents back of the 30-yard line. Every yard you gain on the kick-off saves wear and tear on the whole team later in the game.

One of the reasons why the team with all of the rushing yardage often loses the game, is that the players have used their energy to get *first downs* instead of *touchdowns*. Mr. Mills has pointed out from his study of the game statistics, that any team which receives the kick-off and then bangs along, until, after the long drive, it gets a touchdown, will eventually lose the game to a smart team, later in the game. Of course this is only true when the competition is even. If you want to win those close games next fall, use your kicker to get position and then drive for the touchdown. Get ready for those close games this spring. Train your kickers in balance and follow through, now. It will pay dividends next fall.

In most schools and colleges that I have visited, the kickers are left to their own devices. Very few men have studied the

WHEN THEY PLAY BALL

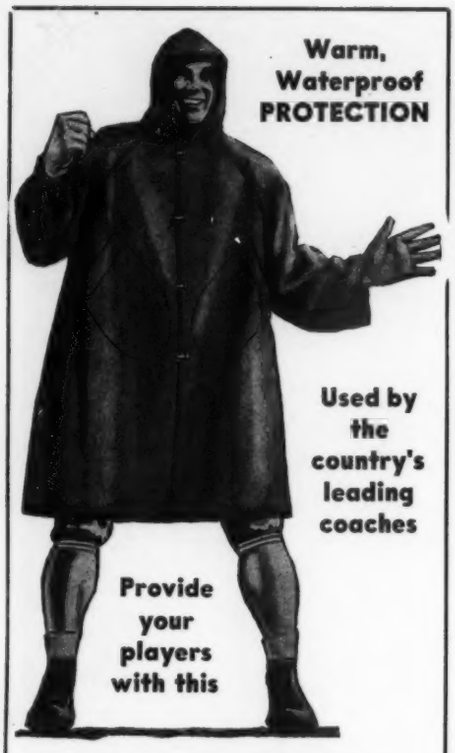
SEE THAT IT'S A REACH BALL

They may not be champions—but they'll be a better nine if you give them the ball that the champions use. *The Reach No. 0 Official American League Baseball* is the only ball used by the American League. The same reasons which make it official with them should make it official with you. This baseball meets official weight, shape and manufacturing specifications. There's no baseball made that does better than the *Reach No. 0* when it comes to *retaining* shape and liveliness throughout play. From special Cushioned Cork Center to its perfectly matched two-piece leather cover, the *Reach No. 0* has been built with that end in view.

Because of its long life, this official American League baseball is economical. When they play ball this year, see that it's a Reach ball, from the first batting practice to the last inning of the big game.

A. J. REACH, WRIGHT & DITSON

BASEBALL AND SOFTBALL EQUIPMENT



Genuine HODGMAN

SIDELINE PARKA

Made of extra strong rubberized percale doubled to heavy blanket lining material. Double stitched seams. Raglan shoulders, fully cut to allow room for pads. Approximately knee length with full skirt so that garment will go under seat and over knees when player is seated. Nickeled rust proof buckles. Extra large slash pockets. Furnished in extra lengths or with zipper hood at slight extra cost. Three sizes: Small medium and large. Colors: Navy Blue, Royal Blue, Cardinal, Green, Khaki or Gold.

See it at your dealer's. If he can't supply you, write us. Sample swatches on request.

HODGMAN RUBBER CO.

Dept. A

Framingham, Mass.

Baseball Manual

Fundamentals Fully Illustrated

An excellent book for class room work or for squad discussions. From the Sports Analysis Group of the Modern Recreation Series of The Chicago Park District.

Price 35 cents

Address

V. F. Hernlund

Modern Recreation Series

Sports Analysis Group

Washington Park, Chicago

kinesiology of kicking. Frank Carideo is one of the few exceptions. About one-fifth of the game of football is kicking, yet rarely do we find a team that spends as much as one-tenth of its practice time on kicking.

Many games are won and lost on the try for point, yet the boy who does this complicated skill may never have practiced it during the season under game conditions. Then, *with the score tied*, and thousands shouting, he is sent into the game to win for alma mater. Many, many times a kicker is sent into the game without warming up his leg. Can you imagine a baseball player on a hot July day jumping from the bench to start pitching? If you want accuracy in your kicking, legs have to be warmed up in the same way, that arms are warmed up for pitching. They allow three strikes in baseball, but only one in football.

Psychologists have pointed out the necessity for the practice of *skills as wholes* if you want successful accomplishment of the *skill as a whole*. Most coaches neglect this known psychological fundamental. Mr. Mills used to say, "If you want to make points after touchdowns, then practice making points after touchdowns as a whole team in practice." It is not a one-man skill in the game on Saturday.

The success of any kicking attack depends upon planned periods of kicking practice each day. Treat your kickers just as you would pitchers. Accurate pitching is not accidental, and neither is accurate kicking. Both require some of the same fundamentals. Practice in balance, follow-through, aiming, and timing are necessary for accurate kicking. Punting under game conditions for accuracy is just as important, as practicing the point after touchdown.

Success in fourth-down kicking is largely luck. This kind of kicking is no test of a kicker's ability, any more than it would be a measure of a passer's ability, when the other team was told a pass was coming. The quick kick is all important in a well-rounded attack. Make your kick look like a run or a pass and you will have a threat. When the defensive quarterback is within twenty yards of the line of scrimmage, a quick kick with a long roll is one of the easiest ground gainers in football.

We have had many high school kickers who could kick accurately forty yards with a fifteen-yard roll from *three to four yards behind the line of scrimmage*. Any well-trained Mills' kicker can do it, and never have a kick blocked, unless, one of his own men do it.

Pictures from the book which Mr. Mills wrote on kicking will give you a much better idea of the holding of the ball and the method of placing it on the foot, than I can give you in these few words. Here are a few tips. The ball must be held in such a position that it can be laid on the foot. We do not hold it out and smash the ball with our foot. We hold it with one hand. A right-footed kicker holds it in the palm of the right hand, just as if he were holding a platter. The middle finger of the right hand contacts the bottom seam of the ball. The ball is held close to the hip, and is laid down on the foot in kicking so that the foot *passes* the ball. The left hand rests on the front of the ball to help balance the body. The kicker should keep the right elbow close to the body and never allow it to go farther forward than the side. There should not be any open space between the upper arm and the side of the body when the ball is kicked.

There are two kinds of punts—the end-over-end and the spiral. If we point the ball straight ahead with the *middle finger* of the *right hand pointing* along the *mid-line of the foot*, we will have an end-over-end punt as the result of kicking the ball. This is the better punt for accuracy and length of roll. The spiral punt results when the ball is turned in so that the front point of the ball points toward the left (for a right-footed kicker), and is kicked with the shoe laces of the shoe. The toe of the foot is not used and a *soft toe* is the best for punting. A low spiral carries best against the wind and a high spiral with the wind. If one knows the fundamentals of sailing, a spiral punt can be tacked against the wind successfully. There are regular spirals and reverse spirals. A left-footed kicker gets a reverse rotation on the ball, and a right-footed kicker can duplicate it by the way in which he lays the ball on his foot. This is for advanced pupils and not for beginners. Teach your beginners simple fundamentals first.

Balance is the most important fundamental of all kinds of kicking. Without perfect balance, no control or direction of the roll of the ball can be developed. Football kicking is the only sports skill that we use which is done on one foot. In every other skill we have two feet for stability. Can you imagine hitting a golf ball from your toes? And now contemplate on the difficulty of golf, if the skill had to be done from one foot. Yet, many kickers are allowed, yes, and taught to get way up on that one toe to kick. They are practically kicking from a balance that one might have, sitting on top of the TRYLON at the World's Fair.

We want to get the maximum stability for the *balance* of our kickers, so we have them kick with the *left foot flat* on the ground. This gives them *maximum stability*, as good balance as one can get on one leg, and a full follow-through. We want all of those cleats on the left foot digging dirt as the ball leaves the right ankle.

Failure to have those left-foot cleats digging dirt, so as to maintain the balance makes possible those so-called freak kicks that you may have seen. In one of the Pitt-Notre Dame games, the Pitt kicker kicked one that went ahead for twenty

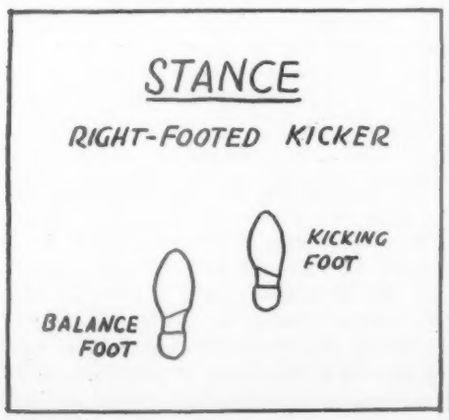
yards, and then rolled back fifteen for a net gain of five yards. This was caused by his loss of balance, and in the act of falling backwards, he kicked the ball. The ball had a reverse rotation so when it hit the ground, back it came. No tricks, just an application of the simple laws of Physics. When it happens to one of your kickers, look for the loss of balance on his part.

The speeding of the roll of the ball is obtained by a full forward movement of the body as the ball is kicked, followed by walking forward. Practice in balancing will perfect this fundamental and prevent these trick kicks in your games. One of the best exercises for developing balance is for the kicker to stand on his left foot, and bicycle with his right while maintaining his balance with all *cleats digging dirt under* the *balance* foot.

The kicking stance is obtained by standing comfortably with the right foot (kicking foot) a little to the front of the balance foot (the left foot) and with the feet about six inches apart. Usually the best position will be found to be one in which the kicking foot is about four to five inches ahead of the balance foot.

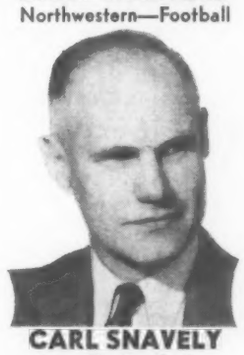
Motion from this stance is the next fundamental. Ask your kickers to step forward with their left foot, and kick up with their right without lifting the balance foot from the ground. Practice this step without the ball until it can be done with no movement of the balance foot. If it feels more comfortable to a boy, we also suggest that he try shifting his weight to the right foot, and then step left and kick. This kicking motion will take up about one and one-half yards and so finishes the kick well back of center. This is one of the reasons why we do not have kicks blocked. In the other stances, whether it be rocker or left foot forward, the kicker uses almost five yards to kick in.

Distance depends upon the follow-through. Since there are ninety degrees of follow-through possible for kicking we try to use the most of it. If we were to lay the ball on the kicking foot as it leaves the ground we make efficient use of most of this follow-through. Any contact of the foot on the ball after it goes up past the hip line is of no value. It will give the



Meet
WALDORF *and* **SNAVELY**
at the
NORTHWESTERN UNIVERSITY
Coaching-School-by-the-Lake
EVANSTON, ILL. AUGUST 14-26

LYNN WALDORF
Northwestern—Football


CARL SNAVELY
Cornell—Football

BRANCH McCRACKEN
Indiana—Basketball

DUTCH LONBORG
Northwestern—Basketball

HERE'S THE COMPLETE LINEUP:

Football

LYNN WALDORF — Northwestern
CARL SNAVELY — Cornell
BURT INGWERSEN — Northwestern
STEPHEN EPLER — Originator 6-Man Football

Basketball

DUTCH LONBORG — Northwestern
BRANCH McCRACKEN — Indiana

Courses in swimming, track, athletic administration, training and intramurals will be given by members of Northwestern University's Coach staff.

WATCH COLLEGE ALL-STARS

During the entire two weeks of the school the College All-Star Football team which will play the New York Giants at Soldier Field will train at Dyche stadium. The practice sessions will be open to members of the Coaching School. Here is an unequalled opportunity to watch a staff of the nation's greatest coaches prepare a team for a game.

TWO BIG WEEKS

Northwestern offers you an opportunity to spend two full weeks with a staff of the outstanding coaches in the country. The records of Waldorf, Snavely, Lonborg and McCracken stamp them among the most successful coaches in their respective sports. In addition to the coaches on the staff, supplementary lectures will be given by members of the All-Star College coaching staff.

ENJOY A GRAND VACATION

You combine study with pleasure at Northwestern. Located on the shores of Lake Michigan, Evanston is an ideal summer resort . . . excellent bathing beaches, Big League baseball . . . numerous golf courses . . . living quarters on the lake front . . . special accommodations for coaches with families . . . A vacation you will never forget.

K. L. WILSON, Athletic Director
Northwestern University, Evanston, Ill.

Please send me additional information on the Northwestern University Coaching School.

Name .....

Address .....

City..... State.....

A STRONG DEFENSE

● Many great universities and scores of high schools are using Continental Chain Link Fence for *a strong defense* against accidents . . . property damage . . . gate crashers . . . unruly crowds . . . etc. It's the modern means of protection . . . the only Chain Link Fence with fabric of KONIK — a special steel for greater tensile strength and rust resistance clear through. It has heavier posts and fittings, stronger bracing; more easily operated gates and locking devices, improved pivot-type hinges, etc. Write today for file-size manual "Planned Protection."

THE CONTINENTAL STEEL CORP.
Kokomo, Indiana
Plants at Canton, Kokomo and Indianapolis

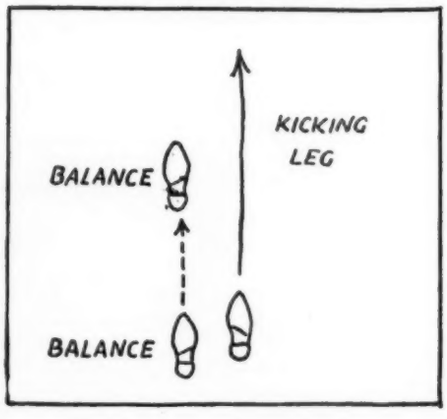
CONTINENTAL
Chain Link
FENCE

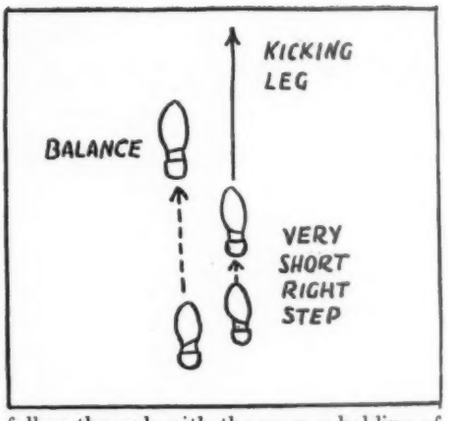
kick a reverse rotation. The *high kickers* who are up *off their toes* are good for the *Sunday supplements* but they seldom hit the *Mills' corner* in active competition.

"You can't hit what you can't see." This axiom is just as true in kicking as in marksmanship. We say to our kickers, "When you don't aim you won't hit." Before every game we carefully survey a field, and help the boys pick out targets at which to shoot in the four corners. In a future article we will discuss this procedure. Then, when the kicker is ready to kick in the game, he takes a look at the target while in the huddle, comes out and with his eye on the ball kicks. Accurate kicking will not result if the kicker tries to split vision between the ball and the target, when he is in the act of kicking.

It is very important to survey carefully your field before the game. You will find some peculiarities in many stadiums. There is a corner in one of the New York stadiums that will prevent a high punt from going out of bounds in one corner, no matter how well directed. This is because of the wind currents generated, even on a quiet day, by the shape of the edifice.

If any boy will practice balance, aiming,





follow-through with the proper holding of the ball, he will be accurate. Practice, practice is necessary. Many hours must be spent in passing the ball with the foot until the kicker can balance the ball on his foot without using his hands. One of my former kickers used to do this fifty times each day during the football season.

Ninety per cent of the field goals are missed over the left goal post. This is because most of the kickers are right footed, and they all have a left pull. This pull takes the ball over to the left, when they aim at the middle of the goal post. This can be easily prevented by having the kickers aim at the right goal post. Most missed field goals are due to poor aiming, split vision or the pull of the right foot. Check up on your kicker for split vision by putting a quarter under the end of your football when place kicking and have the kicker call heads or tails after he kicks the ball. Whenever he calls the right answer the goal will be made. *"Eyes on the ball —never miss at all."*

The crowd will cheer for your team next fall when they make the touchdowns, and *they will groan* if your team is put in the hole by spring-trained accurate kickers.

Floodlighting Practice for a Sports Field

(Continued from page 23)

permanency. However, this method may prove too expensive and good lighting can be obtained at lower installation cost by the use of wood poles and overhead wiring.

Transformers

The usual practice in softball field lighting is to locate one transformer conveniently close to the field. A secondary control switch is then located at the transformer and secondary distribution made around the field either in the form of a 3-wire or a 4-wire service.

Floodlights

Floodlights used for softball field lighting should be of the medium to wide beam spread type. Either open or closed type units may be used, although the maintained efficiency of a closed projector is better than that of an open unit. Debris will collect on the reflecting surface of any open unit, necessitating frequent cleaning to maintain its efficiency. It has been found that the efficiency of an open unit may be reduced as much as 30 to 40 per cent in thirty days, if it has not been cleaned.

Fuses

It is desirable to fuse each lamp, although not absolutely necessary. There are two common methods by which this is done; one is to mount at or near the top of the floodlight pole a fuse block with individual branch circuits to take care of each of the floodlights installed on that pole. This fuse block or panel should be enclosed in a weatherproof steel cabinet.

A less expensive means of fusing, and one which has been used quite successfully, is to attach a weatherproof pigtail socket in one lead of the floodlight. A standard plug type fuse is screwed into this socket.

Planning the Installation

When the lighting of an athletic field is being considered, it is advisable to consult an engineer whose business it is to know how the job may best be done. Your utility company Lighting Service Bureau can render a valuable service in making recommendations without cost to the customer. Most of the leading manufacturers of floodlighting equipment retain a staff of competent and well-trained engineers who propose recommendations and specifications for any specified job. These engineers are glad to work with your engineer or with you in making plans or obtaining estimates.

Cost of Installation

The cost of installations vary in different localities and under different conditions. However, purely for estimating purposes, it may be said that a Class A, 36-unit job, using wood poles and overhead wiring will cost approximately $2,500.00 to $3,000.00; Class B approximately $2,000.00 to $2,500.00 and Class C approximately $1,500.00.

Good lighting pays. Where there are charges for admission the increased gate receipts of night games over day games will pay for the equipment in one season.

For General Play and Playground Fields

CLASS C

OUTFIELD DISTANCE X	UP TO 150′		150′ TO 200′	
Pole	1, 2	5, 6	1, 2	5, 6
Number	3, 4		3, 4	
Mounting Height	40′	40′	40′	40′
No. of 1500-watt units per pole	2	2	2	3
Total Units ...	12		14	
Total KW	21		24	

NOTE: The above wattages are based on operation of lamps at 10 per cent over-voltage which is recommended to obtain 35 per cent increase in light output. However, if it is intended to operate installation more than 200 hours per year, lamps should only be operated 5 per cent over-voltage.

The series referred to in this article will deal with lighting problems for baseball fields, football fields, tennis courts and swimming pools. Pre-prints of the articles will be furnished school administrators who wish the information before the articles appear. Editor's Note.

The new **WORTHINGTON PARK RANGER** gives you the economical answer to all your mowing and other maintenance problems

New Worthington Park Ranger with mowing units hydraulically raised for crossing curbs, sidewalks and roadways. Illustration shows sickle bar, which is available.

The new Worthington Park Ranger is a radically advanced tractor which has been developed by Worthington and Chrysler engineers working together to give you better mowing at less cost. Its Chrysler 6-cylinder industrial motor was selected only after thorough tests had proved its efficiency and economy. A new 1-ton capacity Dodge truck rear-end, hydraulic brakes, transportation speeds up to 32 m.p.h., streamlined, harmonious appearance are only a few of the highlights of this modern Worthington mowing unit that keeps the turf of your playing fields, campuses and grounds in perfect shape.

All cutting units are *behind* the rear axle and can be readily detached in a moment's time, leaving the Park Ranger free for general utility hauling: rollers for tracks and tennis courts; dump carts for hauling cinders or leaf removal; for attachment of rotary brush; for snow removal on driveways, walks and skating rinks; for attachment of snowplows, sprayers or other equipment used in care and maintenance of school and college grounds and playing areas.

Yale, Northwestern, University of California, The Board of Education, Rochester, N.Y.; Philips Exeter Academy and other prominent public and private schools and colleges, as well as thousands of golf courses all over the world, parks and municipal recreational areas find that Worthington equipment gives them better turf and pays for itself quickly in time, money and man-power saved.

Tear out this coupon and mail it today. Get complete information how you, too, can have better turf at less cost with Worthington equipment.

Worthington Mower Company

Main Office: Stroudsburg, Pa.
Sales Agencies: All Principal Cities

WORTHINGTON MOWER CO.
Stroudsburg, Pa., Dept. AJ AP

Please send catalogue on your equipment at no obligation.

NAME.....

ADDRESS.....

CITY.....STATE.....

Night Football Is Here to Stay

By Ralph Piper
Assistant Professor of Physical Education, University of Minnesota

TEN years ago, perhaps even five years ago, night football was classed as a fad, a temporarily popular movement which would soon lose its appeal. Lighting was poor, it was difficult for pioneer schools to get other teams to play under the lights and many administrators and coaches objected to playing night games.

However, the night game has become popular in spite of objections and poor lighting. A nation-wide survey being conducted by the author indicates that approximately 1,500 high schools and 275 colleges played home games at night during the 1938 season, while approximately as many more played night games on opponents' fields. There are over 150 lighted fields in Texas and in Kansas, while the secretary of the Ohio High School Athletic Association reports that in 1937 there were 458 schools playing football in Ohio, of which 306 played at least one night game.

Such figures make it apparent that the nocturnal game is no longer a fad or an experiment. It is an established institution and is here to stay regardless of the opinions of objectors. In fact a large number of schools are making plans to install lighting systems during the coming year. As one advertisement reads, "Such popularity must be deserved," and leads us to consider the reasons for this success.

1. First and foremost on our list we must place the economic factor. It is no secret that gate receipts have increased tremendously at most schools switching to night games. In many mid-Western schools, basketball was formerly the only sport which finished the season in the black. The playing of night games has been the salvation of football in some schools as well as a boon to the whole athletic department, making possible broader intramural and interscholastic programs. Several schools paid off the bill for installing the lighting system with the increased receipts taken in during the first season. The reported cost of installation of lights on 519 high school fields ranged from $300 to $35,000 with an average of $3,037.89. The cost of operating lights or rental fees in these schools ranges from $1.20 per game to $55.00, with an average of $9.23. The average increase in gate receipts as reported by 435 high schools in all parts of the United States ranges from 0 per cent to 1,500 per cent with an average increase of 211.44 per cent.

2. Probably the next most important factor in the development of night football is the favorable attitude of school administrators. Many superintendents and principals who at first opposed night games have become its greatest champions. Many of these men have written to the author stating that when they played games on Friday afternoons, as was common practice, the pupils were so excited about the contest that class work suffered. Periods were shortened or some classes were omitted entirely because the school had to be dismissed early. In short, the whole school program was disrupted, whereas this problem has been entirely eliminated by playing games at night.

3. The night game also lists among its supporters a large group of sports fans whose duties in business, industry, and the professions do not permit them to attend games played during the daytime. Many of these have become loyal school supporters and regular attendants at night games. In addition, many parents find it convenient and enjoyable to attend games with their sons and daughters. This has its values in social benefits and decreased disciplinary problems in the stands.

4. Coaches and players on the whole approve of the plan because they like to play before larger crowds; playing conditions are as good or better, and the change allows them to attend college or university games, attendance at which was impossible when Saturday afternoon games conflicted.

5. According to returns of questionnaires, a large number of school authorities believe that playing conditions are better at night than in the daytime. In answer to the question, 302 stated that playing conditions were as good, 135 said they

TABLE 1

Cost of Installation of Lighting Systems as Reported by High Schools

Cost of Installation	High Schools in Cities of Population Classes Indicated: 1000-less	1001 2500	2501 5000	5 001 10,000	10,001 25,000	25,001 50,000	50,001 100,000	Over 100,000	Total
$1000-less	7	19	18	7	7	4			62
1001-1500	4	30	28	17	16	1	2		98
1501-2000	2	22	26	33	16	8	1	2	110
2001-2500		8	18	18	16	2	2	3	67
2501-3000	2		5	21	19	4		2	53
3001-4000		1	7	16	13	6	2	8	53
4001-5000				2	8	5	2	4	21
5001-10000		1	1	7	6	6	1	8	30
over 10000				1	2		2	9	14

TABLE 2

Percentage Increase in Gate Receipts at Night Games over Day Games in High Schools

Number of Schools in cities with Population of:	Increase in Gate Receipts 50% or less	51% to 100%	101% to 150%	151% to 200%	201% to 300%	301% to 500%	501% to 750%	751% to 1000%	Over 1000%
1000 or less	2	1	3	3	2	1			
1001 to 2500	3	34	6	10	10	7	3	1	
2501 to 5000	12	26	12	15	17	11	3		
5001 to 10,000	10	30	8	12	25	21	3	2	
10,001 to 25,000	3	22	11	14	20	7	3		1
25,001 to 50,000	3	9	4	5	4	2	1	1	
50,001 to 100,000	2	2		2		1			
over 100,000	6	5	6	1	1	1		2	1
All High Schools	41	130	50	62	80	51	13	6	2

were better, and 59 said they were not so good at night as in the daytime.

In discussing this problem one must consider weather, including temperature, wind velocity, and raininess.

A. Visibility.

Visibility depends largely on the amount and distribution of light. Even with a sufficient amount of light available, distribution of that light is more important and modern lighting systems provide a better distribution of light with lessened glare and shadows than is ordinarily found during afternoon contests. However, it is true that there are some very poorly lighted fields as well as some which are very well lighted. Present data indicates a range in total kilowatt output of lighting systems from a minimum of 12 KW to a maximum of 262 KW, with an average of 60 KW on high school fields.

Space does not permit a discussion of the problems of lighting in this article, but schools with lights might consider their plant up to standard if they have a minimum of 70 KW providing the projectors and lamp bulbs are efficient and clean, providing the poles are not over thirty feet from the side lines, and if the projectors are mounted at a height of from forty to sixty feet.

In certain sections of the country prevalence of fogs late in the season affects visibility so greatly that schedules should be drawn up with night games during September and early October only.

B. Weather conditions.

Temperature. Night games are especially popular in the Southern states where the afternoons are extremely hot during September and early October, and the evenings more comfortable for players and spectators. In the Northern states, the evenings are, as a rule, comfortable up to late October, but become cold during November.

Wind. It is a generally conceded fact that there is lower wind velocity during the evening hours than during the afternoons.

Raininess. A study of United States Weather Bureau Reports indicates that on the average there is less rainfall during the evening than in the afternoon, the hours when football games are usually played.

6. Not least in its effect on popularizing night football as well as other night sports has been the improvement in lighting equipment. Several electrical equipment manufacturing companies have made extensive research in this field and have devised efficient, inexpensive units with which it is possible to provide excellent lighting on any field. The National Electrical Manufacturers Association has established a set of recommended standards for standard football field lighting layouts.

7. The welfare of players must be considered in any evaluation of a sport. In this connection the incidence of injuries at night games compared to day games is the

Hold Everything! . . .

The Competition Can't Keep up

Nimble-footed, these athletes and teams that stand out well above competition! Chances are you'll find them wearing shoes of Genuine Kangaroo. Most winners do. The reasons are obvious.

Footwear of Genuine Kangaroo is the acknowledged footwear of Champions. It means absolute foot-freedom; a leather 17% stronger, weight for weight, than any other leather; one that is not only tough but 14% lighter at any given strength, is well-and-away a first essential of the correctly outfitted athlete.

Genuine Kangaroo is the only shoe leather for *your* team. You owe it to them to specify Genuine Kangaroo when ordering their shoes. Don't neglect this important essential.

GENUINE KANGAROO TANNED IN America

FLOORS DON'T MAKE TEAMS

CONTRARY to some of the claims made for floor finishes, you won't have a championship basketball team merely because you use this or that brand in your gymnasium. No floor finish is going to make world-beaters out of mediocre players. A top-notch team usually wins on any kind of floor. But the right kind of gymnasium finish does help improve the game for players and spectators.

That's all we claim for Dolcorock. This high-surface finish permits quick starts and sudden stops with less slips. It is proof against rubber burns. It is good to look at. It is durable. If you have a poor team, Dolcorock won't send the ball through the hoop.

Dolcorock has been used by colleges and high schools boasting championship teams. It has been used by schools with poor teams. The consensus is that Dolcorock has helped make the game more enjoyable for everybody. We'd like to tell you more about it. Please send for manual J-4.

DOLCOROCK

The C. B. DOLGE CO., Westport, Conn.

subject of a study being conducted by Mr. Elmer Burnham of the Athletic Department at Purdue University. So far as the author has been able to determine there is little if any difference although Mr. P. F. Nevermann, Secretary of the Wisconsin High School Athletic Association states that statistics on injuries in Wisconsin high school games indicate a lower incidence of injuries at night games particularly during the first half of the season.

In summary, since one must conclude from the available evidence that night football is no longer a fad or an experiment, and since it is an established institution and is here to stay, more schools will be forced to install lighting plants because of the pressure from sports fans and because of increasing difficulty in finding other schools with whom to schedule day games. Hence, authorities are urged to evaluate critically their equipment, to improve conditions for players, coaches, officials, and spectators, to aid in research studies which are under way, and to pool their efforts in an attempt to solve administrative problems which may arise.

Deciding a Conference Three-Way Tie in Basketball

By Chester S. Barnard

Director of Athletics, Kalamazoo College

A PLAY-OFF tournament such as the one described in this article might suggest a too strenuous type of basketball. With each half reduced five minutes, with ten-minute rest periods between halves, with each team playing a half before completing the game and with adequate provision made for the relaxation of the players, Mr. Barnard and his associates provided in an excellent way for the safety of the players.

TAKE three teams and twenty-five players battling for three and one-half hours for a championship; add better than 4,500 wild fans crammed to the rafters witnessing this basketball marathon; throw in the fact that two of the three games were decided in the last five seconds of play; top it off with both games being decided in the same manner, with identical scores, and each by one point, and you have the answer to an experiment tried in the Michigan Intercollegiate Conference this year.

Ties between basketball teams in college conferences have often resulted in post-season play-offs, but this was something new and different and it proved a sensational success. It had all the thrills and chills of the final night of a high school tournament, coupled with the college brand of basketball. Most fans consider themselves lucky to see one close game a season, but to witness two games in one night won in the last seconds of play and by the same score is not the privilege even of the fans in fiction. It really gave fans from Southwestern Michigan a treat.

After one of the closest races in the history of the MIAA, three teams were tied for the title. The Michigan Intercollegiate Athletic Association has no clause in the constitution covering a three-way tie, and time and circumstances did not permit the play-off to be made via the bye route. A new method had to be devised. Coaches and MIAA representatives of Kalamazoo, Albion and Hope colleges got together with DeGay Ernst, judge advocate of the conference, and from this meeting came the solution—a round-robin series of shortened games, to be played in one night.

The regulation game of forty minutes was reduced to thirty, with five minutes clipped from each half. Although each quintet was to play two games according to the new arrangement, only a game and a half of regulation basketball would actually be played. If at the end of the series the teams were still knotted, the scores of the games would be totaled and the one with the greatest aggregate score would be declared the winner.

The play-off marathon was divided into two rounds, with each five playing a half with each opponent, before completing the game with the first one. Ten-minute rest-periods were allowed between halves; cots and medical facilities were provided in the locker rooms for the comfort of the players. A play-off of this kind tested the stamina, offensive and defensive power, and particularly the reserve strength, of every team.

Numerous Thrills

Two of the games won by identical scores 30-29; in the last few seconds! A player snatching a tip high in the air and with his back to the basket flipping in an overhead shot! A long shot and the ball hits the side of the hoop, bounds high in the air, rolls to the back of the rim, pauses and drops in. A frantic spurt down the court but not time enough left to reach the basket, a jump high in the air and a push shot that was good were some of the thrills that the play-off marathon furnished the fans.

This type of play-off proved successful beyond expectations in a conference of small colleges. In the big conferences, where it is not unusual for more than two teams to tie for the title, it would provide a novel way of deciding the championship.

A Hundred Years of Baseball

High Lights in the Growth of Baseball

At Cooperstown, New York, in 1839, Abner Doubleday, a cadet at West Point, decided to simplify the game of town ball. He devised the first baseball diamond, put bases into baseball, limited the number of players to eleven (town ball was played with thirty or more players), and proposed that putouts could be made by tagging or throwing to the base instead of soaking the runner.

In 1842 a group of New York men met on week-ends at Twenty-seventh Street for a friendly game of baseball. One of their number, Alexander J. Cartwright, three years later organized a baseball club, known as the Knickerbocker Baseball Club with the purpose of putting a team in the field to compete against other groups.

On June 19, 1846, the Knickerbocker baseball team played their first game with a pick-up team, called the New York club. The rules at that time, drawn up by the Knickerbockers, stipulated the team scoring 21 aces or better was the winner. Only four innings in this first game were played and the Knickerbockers were defeated.

The First Rules of Baseball

Sec. 1—The bases shall be from "home" to second base forty-two paces; from first to third base forty-two paces equidistant.

Sec. 2—The game to consist of twenty-one counts or aces (runs) but at the conclusion an equal number of hands (outs) must be played.

Sec. 3—The ball must be pitched (underhand) and not thrown (freehand) for the bat.

Sec. 4—A ball knocked outside the range of the first or third base is foul.

Sec. 5—Three balls being struck at and missed, and the last one caught, is a hand out; if not caught, is considered fair and the striker (batter) bound to run.

Sec. 6—A ball being struck or tipped, and caught either flying or on the first bounce, is a hand out.

Sec. 7—A player running the bases shall be out if the ball is in the hands of an adversary on the base, as the runner is touched by it before he makes his base—it being understood, however, that in no instance is the ball to be thrown *at him*.

Sec. 8—A player running who shall prevent an adversary from catching or getting the ball before making his base is a hand out.

Sec. 9—If two hands are already out, a player running home at the time a ball is struck, can not make an ace if the striker is thrown out.

Sec. 10—Three hands out, all out.

Sec. 11—Players must take their strike in regular turn.

First Annual

DAYTONA BEACH COACHING SCHOOL

August 21-26, Inclusive

DAYTONA BEACH, FLORIDA

"The Outstanding Coaching School in the South"

Six Days of Intensive Instruction in

Football and Basketball

BIERMAN
University of Minnesota
Western Conference
Champions
Single Wing with
Variations

THOMAS
University of Alabama
Rose Bowl Contenders
1934-37
Notre Dame and Short Punt

LEAHY
Boston College
Developed Fordham's
Famous "Seven Blocks
of Granite"
Line Play

HINKLE
Butler University
Natural Basketball
Butler Players Will Demonstrate

HIGGINS
University of Tampa
Scouting

Lectures—Demonstrations—Motion Pictures—Individual Problems

Tuition $15.00 Rooms and Meals at Reasonable Rates

For Further Information Write

George R. Trogdon
Landon High School
Jacksonville, Florida

L. L. McLucas
Seminole High School
Sanford, Florida

The School No Progressive Coach Should Miss

Daytona Beach, Florida's year-round resort center, invites you for a grand summer vacation. Swim and play at the "world's most famous beach." All kinds of sport and entertainment.

BASEBALL COACHING KIT

18 BOOKLETS—$1.65

Coaches Instructions to

BATTERYMEN
1ST BASEMEN
2ND BASEMEN
3RD BASEMEN
SHORT STOPS
OUTFIELDERS

2 Copies of Each of Above Plus

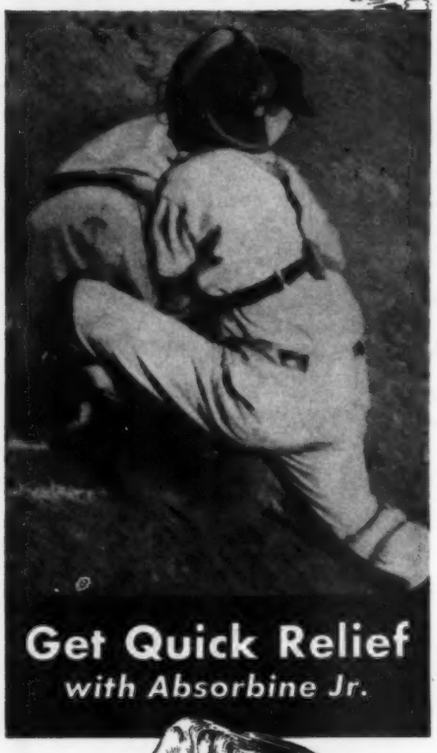
1. Organizing the Pitcher's Thinking
2. Practice Work with Pitchers
3. Qualifications of Baseball Players
4. Extra Dividends in the Batting Order
5. Practice Session Talks
6. Signal System for the Coach

Order from

H. S. DeGROAT, Baseball Coach

B. Dept., Springfield College, Springfield, Mass.

When SORE MUSCLES block that "Force-Out" Play



Get Quick Relief with Absorbine Jr.

-Flush out poisonous FATIGUE ACIDS—cause of MUSCLE PAIN

When stiff muscles slow a player down, it means poisonous fatigue acids have settled in them—make them swell and ache.

Right after strenuous exercise, put Absorbine Jr. on the job! Accepted laboratory tests prove it speeds the blood through the muscles to flush out the fatigue acids. It's a fast worker when you need to limber up. Splash it on after every practice and game and 2 or 3 times a day. Many coaches and trainers have recommended Absorbine Jr. for over 40 years. At all druggists. $1.25 a bottle.

FREE SAMPLE—Write W. F. Young, Inc., 245 Lyman St., Springfield, Mass.

ABSORBINE JR.

FAMOUS also for Relieving Athlete's Foot, Strains, Bruises

Sec. 12—No ace or base can be made on a foul strike.

Sec. 13—A runner cannot be put out in making one base, when a baulk is made by the pitcher.

Sec. 14—But one base allowed when the ball bounds out of the field when struck.

Baseball Equipment

Wagon tongues, rake and ax handles and branches of trees served as bats until 1845, when players made their bats by hand. In 1849 the first baseball uniforms appeared, natty outfits of blue woolen pants, white flannel shirts and straw hats.

Baseball Clubs Increased

Clubs sprang up around Manhattan and in 1858, twenty-five clubs met in convention and the National Association of Baseball Players was formed. Out of this meeting came a new rule on strikes. Previous to this time a player could wait out as many pitched balls as he wished.

The First College Game

Amherst and Williams played the first game of intercollegiate baseball at Pittsfield, Massachusetts, on July 1, 1859. By prearrangement, the two teams agreed that the winner would be the one scoring sixty-five runs. At the end of four hours, after twenty-six innings of play Amherst won the game 66 to 32.

In 1867, the first curve ball came in, Cummings, a pitcher for the Stars of Brooklyn, trying it out on a Harvard team.

In 1869, the Cincinnati Reds decided to disregard pseudo-amateurism and come out openly as a professional team. Uniformed in short pants and red sox, these salaried players (salaries ranging from $600.00 to $1,400.00), toured the country.

By 1871, there were thirteen professional ball clubs and in that year the National Association of Professional Baseball Players was organized.

The Popularity of Six-Man Football in the Texas Winter Garden District

By Elmer A. Brown
High School, Asherton, Texas

THERE were several reasons for taking up six-man football in the Winter Garden District of Texas. First, some schools lacked sufficient players to build a good eleven-man team, and for several years smaller schools had been consistently beaten by teams from the larger schools. It was hoped that six-man football would revive in smaller schools by giving an opportunity to build good teams. Second, the officials wanted to experiment with the new game to see whether it was better adapted for use in the average high school than is the eleven-man game. Although six-man football is maintained at less expense than the older game, the financial status of the schools was not a factor in this district.

When the Winter Garden District was organized, only seven teams were admitted for fear that those from the larger schools might be too strong for the others the first year. Each team was to play every other team once. After the season began, interest was so strong that a double round robin was scheduled to determine the winner of the district. Since the season has ended, eight schools have applied for admission to the district for next year.

As you know, coaches can by agreement do away with any rule in the six-man football rule book. Only one rule was found objectionable and was left out in this district.

Substitution Rule: Any substitute on entering a ball game, shall report first to the score keeper and then to the referee. When a substitute is sent in, he should think only of what the coach has told him. If he has to report to several officials, he often forgets his instructions. Consequently, it was thought best not to observe the substitution rule. All the other rules were followed closely.

The Texas Interscholastic League rules specify that a six-man team may schedule games with any other team during the season but may play for the championship of only the home district. In the near future six-man teams will probably be allowed to play for the state championship just as eleven-man teams do.

My school, Asherton High School, played the game with a shift. The three backfield men would come out of the huddle and line up directly behind the line. As the signal was called, they would shift into a double wing, a single wing, or a modified punt formation. The back field men were thus put in position to receive passes as well as to block the ends.

In the Winter Garden District this year six-man football proved to be faster and more interesting for the spectators and less dangerous for the players than is eleven-man ball. To prove that small schools do have a chance, this school's enrollment was next to the smallest in the district, yet we won the league. Although some of the schools had to buy their entire equipment this year, they finished the season with athletic debts all clear and with money to start the next season. Injuries to players were almost as infrequent as they are in basketball, the majority being jammed fingers and skinned noses. The district injury chart showed one broken leg, but the accident happened during

practice and was caused by a player running into the goal post. All in all, six-man football proved entirely successful in the Winter Garden District, and in my opinion no school in the district will wish to return to the game of eleven men after this year of six-man ball.

Are College Athletics Commercial and Is It Necessary to Subsidize Athletes to Produce a Winning Team?

(Continued from page 29)

mural participation by upholding high standards of sportsmanship, providing good officials, fair dealing with all individuals and groups, providing a multitude of opportunities for leadership and co-operation and planning the program with the students.

5. Believing that the best interests of the individual can be served by not making too great demands upon the student's time and by an administration which is sympathetic to other interests and administrative departments in the university.

Last year (1937-38) 1,340 teams, composed of 3,927 different men competed in fifteen intramural team sports. More than 850 men took part in the ten individual competitive sports (i.e. tennis, handball, golf, etc.). While the varsity football team was playing a schedule of eight games, ninety-seven touch football teams played schedules within the intramural program. Basketball was played by 260 teams, totaling more than 2,178 men. Approximately 4,777 men took part in this competitive sports' program. It is conservatively estimated that 2,000 boys—who did not play on teams or enter the scheduled competition of the intramural program—used the recreational facilities. The total benefiting from facilities and services provided through intramurals was 6,777 out of the 9,462, or better than 70 per cent.

During the past five years, an average of just under 1,000 boys have received instruction from the coaching staff in the twelve sports on the intercollegiate program. These sports are: football, basketball, track, baseball, swimming, tennis, wrestling, golf, fencing, cross-country, polo and gymnastics. Rifle and pistol shooting has also been supervised and financed by the athletic department.

Year	*Freshman*	*Varsity*	*Total*
1934	574	227	801
1935	741	292	1,033
1936	698	272	970
1937	721	302	1,023
1938	693	301	994

This figure added to the intramural and recreational participation numbers shows that more than 80 per cent of the male student population derives direct benefit from athletic gate receipts in one manner or another.

FLOODLIGHTING

IS SUCCESSFUL AT UNIVERSITY OF FLORIDA

AFTER one season the University of Florida pronounced its G-E floodlighting "a success both as to playing conditions and attendance." The lighting, installed with the aid of experienced G-E engineers, has provided the high degree of illumination players need to play their best brand of football. If you are planning to floodlight your field or to modernize your present lighting, take advantage of the G-E floodlighting engineering service that has been an important factor in the lighting of nearly 400 athletic fields. Write the nearest G-E sales office or General Electric, Schenectady, N. Y.

See the G-E "House of Magic" at Both Fairs

GENERAL ELECTRIC

500-335

Plan Now to Attend

LONG ISLAND UNIVERSITY

COACHING SCHOOL

Manhattan Beach, Brooklyn, N. Y.

August 21-28

Football

"Potsy" Clark—Coach, Brooklyn Dodgers
Team Offense—Single Wing-Back
"Tad" Wieman—Coach, Princeton University
Offensive Line Play
"Bill" Kern—Carnegie Tech
Defensive Line Play
"Bo" McMillan—Indiana University
Team Defense
"Andy" Kerr—Colgate University
Double Wing-Back Offense
"Dutch" Bergman—Catholic University
"Notre Dame" Offense
"Ken" Strong—New York University
Kicking
"Gus" Shorts—Bucknell
Individual Line Play

Basketball

"Paul" Mooney—Columbia University
Set Offensive Plays
Joe Lapchick—St. John's University
Pivot Play Attack
"Buck" Freeman—Long Island University
Defensive Play (Man for Man)
Clair Bee—Long Island University
Offensive Play and Zone Defense
Ed Kelleher—Fordham University
Quick Break

Officiating

"Pat" Kennedy
Dave Walsh
Jack Murray

National Basketball

Ned Irish—Dir., Basketball
Madison Square Gardens

Swimming

L. de B. Handley—Olympic
Champion and Coach

Training

John Williams—New York
University
S. J. Picariello—Long Island
University

Football Demonstrations
by Brooklyn Dodgers

Basketball Demonstrations
by Long Island University Varsity

A Special Course in 6-Man Football

Hugh J. Gaffney—Cornell
University

WATCH FOR LATER ANNOUNCEMENTS

SEND FOR COACHING SCHOOL BOOKLET

Address:

Clair F. Bee, Director
Long Island University Coaching School
Manhattan Beach, Brooklyn, New York
Fee $15.00
Visit World's Fair

YOUR GYM MATS WILL STAY "SPRINGY" LONGER IF YOU INSIST ON A FILLER OF

Genuine All-Hair **OZITE**

PLATEN PROCESS

GYMNASIUM MAT FELT

Look for the OZITE label on the cover—it protects you against substitution and guarantees a 100% ALL HAIR filler!

You won't need to worry about replacements when you buy gymnasium mats filled with OZITE All Hair Gym Mat Felt . . . they're more resilient when you start to use them, they stay "alive" and springy through many years of hard punishment!

Genuine OZITE All Hair Gym Mat Felt is heavier and denser than ordinary cushion felts. The laminated construction, shown at right, insures a smooth flat lie, free from lumps and bumps. Platen-process felting assures complete freedom from broken needles that can be so injurious to the users. For safety, comfort and longer life, INSIST on gym mats filled with Genuine OZITE All Hair Gym Mat Felt!

Write for samples and names of manufacturers and dealers who can supply you.

AMERICAN HAIR & FELT COMPANY

Merchandise Mart, CHICAGO

SAFE! NO DANGER OF BROKEN NEEDLES

You'll never find a broken needle in gym mats filled with Genuine OZITE All Hair Gym Mat Felt because no needles are ever used in OZITE Platen Process Felting—nothing can break off, no metal object of any kind can possibly get into the felt! That's why OZITE-filled Gym Mats are always 100% SAFE!

POLO GROUNDS
New York City

Proving Ground for

HENDERSON'S ATHLETIC FIELD GRASS SEED MIXTURE

Turf has to be good to stand up under the hard constant use it gets at this famous home of the New York Giants . . . Baseball, football, and many other sports take a season-long toll of the turf . . . Turf cannot be better than the seed sown to produce it . . . That Henderson's Athletic Field Grass Seed Mixture is used on the Polo Grounds, year after year, is proof indeed that it will produce the finest turf for sports fields . . . The turf you want on your sports fields.

WRITE FOR FREE SPORTS TURF CATALOG

or better, list your requirements, and let us quote prices

Write Today

PETER HENDERSON & CO.

DEPT. 6, 35 CORTLANDT STREET, NEW YORK, N. Y.

Other Uses of the Athletic Plant

In 1933, Dean of Men Joseph A. Park conceived the idea of using the southwest tower of the stadium for a co-operative men's dormitory. The athletic authorities readily agreed to this and in the fall of that year, seventy-eight men made the Tower Club their home. Since then the west side of the stadium has been gradually reconstructed with the assistance of federal funds so that now the Tower Club houses 310 men. A third addition to the club is being completed this year, which will provide space for 110 more.

The admissions to Tower Club are made by the University Examiner, Dean B. L. Stradley, on a basis of character, need and scholastic ability. (Three members of the 1938 Football Team were Tower Clubbers.) The finances of the club are supervised by the university comptroller, its meals and menus are watched by the manager of the men's union. Dean Park has general supervision of Tower Club life.

Thus the gate receipts have provided living quarters for 420 outstanding Ohio boys at rates which average $3.25 a week for board and room. Perhaps in another generation the stadium will be the home of 2,000 deserving boys as well as the mecca for crowds of 75,000 sports' fans who enjoy watching the most thrilling of all college sports—football.

How We Maintain Good Turf on Athletic Fields in Pennsylvania

(Continued from page 22)

for sowing the grass seed can be summed up quickly. It must be finely pulverized and firm. The harrow and the cultipacker are the two most useful implements for fitting the seed bed. The harrow brings the clods to the surface and the cultipacker, simply a corrugated roller, crushes the clods and firms the soil without packing it. After the final cultipacking the field is ready to seed without any further preparation.

Excellent results have been obtained by cultipacking crosswise of the field the last time over, then broadcasting one-half of the seed. Use the cultipacker once more lengthwise of the field, then sow the rest of the seed. No covering is necessary since the rain and the wind break down the cultipacker ridges just enough to cover the seed, and the furrows prevent the water from washing the seed away.

Where a cultipacker is not available the roller should be used in place of it in which case the seed must either be harrowed in or raked in. A grass seed drill is a valuable implement since it covers the seed only lightly. Seed covered too deeply (over one-half inch) has difficulty coming through. Grass seed broadcast and harrowed or raked lightly may come up

unevenly due to bunching, if the work is not done carefully. A light rolling after raking helps press the seed into contact with the moist soil, assisting it to germinate more quickly.

No matter how good the preparation for seeding, a poor seed mixture can nullify most of the good work. A good seed mixture need not be expensive. There are excellent athletic field mixtures handled by reputable dealers but, when in doubt, buy the seeds separately and mix them on the job. The seed law does not require a guarantee of purity and germination on mixtures, but it is strict regarding pure seeds.

Seed mixtures may be varied considerably without greatly affecting the results. The following mixture has given very good results in most sections of the state: Kentucky blue grass 40 per cent, Chewings fescue 20 per cent, Perennial rye grass 40 per cent. This mixture is best adapted to fall seeding. Spring seedings should have 50 per cent or more of rye grass for quick cover, or 20 per cent of timothy may be added to replace some of the blue grass. In the sections where fescue does poorly, it may be wholly replaced with blue grass.

Maintenance of the turf after it is large enough to cut consists mainly of clipping, watering, weed control, and repair of the injured areas. Height of cut is extremely important because it so greatly affects the development of the root systems. Close clipping produces shallow-rooted turf which is easily kicked out by the players. Close clipping encourages weed growth by making the turf so weak that weeds have little competition. Crab grass competes strongly with close-clipped turf. Turf is playable for almost any sport when maintained at two inches. During the off-season, when the field is not in play, the mower should be kept at three to four inches to permit the maximum development of turf and competition to weeds. One athletic field in Pennsylvania this past fall kept the mowers at four inches during the playing season and at one time the growth measured five inches. It was perfectly satisfactory for play because the tall grass was soon pressed flat and this cushion of turf protected the roots from being ground out by the players' spikes. Recovery of this turf is very rapid in the spring.

Few fields are watered but when a watering system is available it should be used only as insurance to keep the turf from suffering from drought injury. It is much better to soak the soil deeply (four to five inches) at relatively long intervals than to sprinkle lightly every other day or so.

Weed control on athletic fields may take several forms depending upon the types of weeds present and the severity of the infestation. The most common weeds which infest sports turf are dandelions, plantains, knotweed, crab grass, chickweeds. All of them are discouraged by good management. All usually result from the inevitable injuries which leave bare

SORE ARMS **FINGER INJURIES**

BRUSH BURNS **SPIKE WOUNDS**

are often very incapacitating and may not only rob a baseball player of his efficiency but the team of one of its best players.

A first-aid dressing of Antiphlogistine is one of the best means of treating the injury. Apply it hot and thick and renew when it will come away by itself. It is **pain-relieving** and **decongestive** and being aseptic may be applied direct to an open wound without pain to the patient.

Antiphlogistine

Free sample to coaches, trainers and athletic directors

THE DENVER CHEMICAL MFG. COMPANY

167 Varick Street **New York**

The Tetra Bandage

ELASTIC WITHOUT RUBBER

350 North Clark Street Chicago, Illinois

SAVE MONEY ON

MEDALS-CUPS-TROPHIES-BADGES

Write for new colored catalog No. 30A

EAGLE METALART CO.

298 BROADWAY, NEW YORK, N. Y.

PETCO TRADE MARK

GYM MATS

WRITE FOR CATALOGUE

PETERSEN & CO.

5559 Baynton St., Philadelphia, Pa.

END DUST AND WEEDS

—ON ATHLETIC FIELDS TENNIS COURTS PLAYGROUNDS BASEBALL DIAMONDS TRACKS

Use the material leading schools, colleges, parks, playgrounds and tennis clubs have used for over 20 years—SOLVAY CALCIUM CHLORIDE.

This inexpensive treatment, which completely ends dust and binds the surfaces of unpaved areas, has these advantages:

- **CLEAN, ODORLESS—NON-STAINING.**
- **EASY TO USE . . .** Solvay Calcium Chloride flakes are used just as they come from the bag. No previous experience or elaborate equipment is required.
- **ADAPTABLE . . .** Solvay Calcium Chloride may be used to treat almost any type of unpaved surface.
- **ECONOMICAL . . .** The cost of the Solvay Calcium Chloride method is low enough to permit treatment of large as well as small surfaces at comparatively little expense.
- **A WEED CONTROLLER . . .** Solvay Calcium Chloride prevents the growth of grass and light, short-rooted weeds.

Send for the complete, illustrated booklet "The Clean, Easy, Inexpensive Way to End Dust." Write to Dept. 52-4.

SOLVAY SALES CORPORATION
Alkalies and Chemical Products Manufactured by The Solvay Process Company
40 RECTOR STREET NEW YORK, N. Y.

SOLVAY
Calcium Chloride
CLEAN, ODORLESS, NON-STAINING TREATMENT FOR ENDING DUST AND CONTROLLING WEEDS

areas where the weeds have no competition. Knotweed is the result of packing and puddling of the soil which smother grass roots leaving the knotweed free possession of the area.

Dandelions, plantains, and other rosette weeds are best controlled by spot-treatment which consists of placing a small amount of poison directly on the crown, either with a spoon, spatula, or with one of the inexpensive weed canes on the market. This may be done at any time of the year but best in the spring before the weeds bloom. All weed control should point primarily to eliminating seed production.

Crab grass is best controlled by high clipping and other methods which produce a dense turf. Occasionally it gets out of hand and smothers the good grasses. In this case it has been successfully demonstrated that it can be killed by a single application of sodium chlorate in August, followed by liming, fertilizing, seeding and top-dressing to re-establish good turf before the playing season starts. Complete information on this treatment is in the hands of the county agents since each field presents a different problem and no general program would be successful on all fields.

Knotweed is the first to start in the spring. The seeds from the previous year germinate very early and, if nothing is done to kill them, they smother the grass seedlings which come up later. A program used successfully on several fields consists of treating the young knotweed seedlings with sodium arsenite either as a spray or in a mixture of sand and fertilizer broadcast on the affected areas. Seed may be sown within a week following the treatment. The method used will depend upon the equipment at hand and the relative amount of grasses present and cannot be outlined for all fields.

The repair of injured areas presents one of the greatest problems on the athletic field and this operation is most often done poorly. The first essential is a good mixture of topsoil five parts, sand one part, humus one part, by volume, to be used for filling the gashes and levelling the holes. By mixing two to three pounds of a quick-growing grass seed mixture to every wheelbarrow load of top-dressing the injured areas will heal quickly. This may be done immediately after every game and at the end of the playing season, regardless of the frozen soil which so often occurs in November in Pennsylvania. The top-dressing covers up weed seeds in the soil and, even though the grass seed may not start until spring, it will be there to start at the earliest opportunity ahead of the weeds.

Fertilization is a very important part of the management of a sports' turf. In many cases the fertilizer is not applied until *after* the playing season. The best time to apply it is in late August so that it can stimulate the grasses *before* the playing season and thus help the turf resist the play and recover from the injuries. Where the turf is poor, it will benefit from two applications a year, very early spring and again in late August.

Any one of several fertilizer combinations may be used on athletic field turf. One of the combinations used successfully has been equal parts 4-16-4 and one of the organic nitrogen carriers, such as cottonseed meal, tankage, or soybean oil meal. Several good complete fertilizers which may be used alone are 4-12-4, 5-12-3, and 5-10-5. From 1,000 to 1,500 pounds for the gridiron (1¼ acres) is usually sufficient for a single application. It hardly seems necessary to add that uniform distribution is essential to avoid streaking.

There are some fields that can be benefited most by a program of rebuilding by plowing, adding the necessary soil amendments, turning under a heavy green manure crop, and reseeding early in the fall for use the following year. This was done most successfully by one State Teachers College in 1937. The turf was so poor and the soil so unfavorable that ordinary renovation could effect only small improvement. Accordingly, a program was outlined and followed. The field was limed in the spring of 1937 and a dressing of mushroom soil plowed down. More lime was applied on the plowed ground, and 1000 pounds of 20 per cent superphosphate worked in while the seed bed was being prepared. Late in May one bushel of soybeans and fifteen pounds of Sudan grass were sowed. This crop grew up to about four feet in height and was very heavy, smothering all weed growth. It was thoroughly disked and then plowed under in mid-August and allowed to lie for two weeks. Then the seed bed was prepared so that it was finely pulverized and well-compacted. One-half ton of 5-10-5 fertilizer was applied just before seeding in early September to a mixture of Kentucky blue grass, Chewings fescue and perennial rye grass. The mower was set to cut at three inches and kept at that height all through the next season. In September the field was ready for play. An application of complete fertilizer in early September put the turf in excellent condition for play. Used every week, it showed surprisingly little damage at the end of the season. This program was very inexpensive and kept the field out of play only one season, making it necessary to use the practice field for that period. Now with the main field in good shape, the practice field is to be renovated in the same way for future use.

Canvas covers are used on many fields to keep them dry before a game. Too often these covers are put on the field several days before a game, even though there is no sign of rain or snow. A hot sun beating down on the canvas can ruin a good turf in a very short time. Granted that it

ATHLETIC HEADQUARTERS
IN CHICAGO

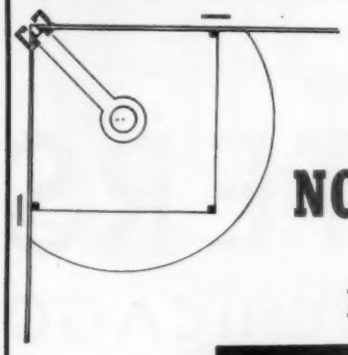
Occupying practically an entire square block, rising 25 stories high, and providing 1700 guest rooms, Hotel Sherman is the most accessible and conveniently located hotel in Chicago.

1700 ROOMS
1700 BATHS
***from* $2.50**

- **Ideal headquarters for your teams, whenever they come to Chicago.**
- **Exceptionally comfortable beds with extra long sizes specially for big men.**
- **Special "training menus" gladly arranged.**
- **Convenient to all transportation and places of amusement.**
- **Home of the College Inn, featuring, always, a nationally famous orchestra.**

CLARK » LAKE » RANDOLPH AND LA SALLE STREETS

C·H·I·C·A·G·O



The
PERFECT
NON-CAUSTIC
MARKING
MATERIAL

WITELINE

for

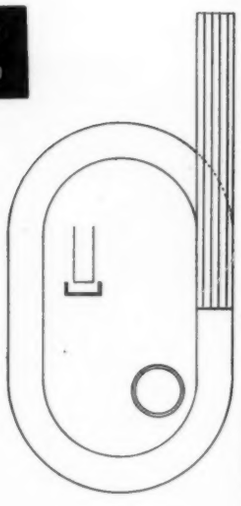
ATHLETIC FIELDS

•

WRITE FOR DATA

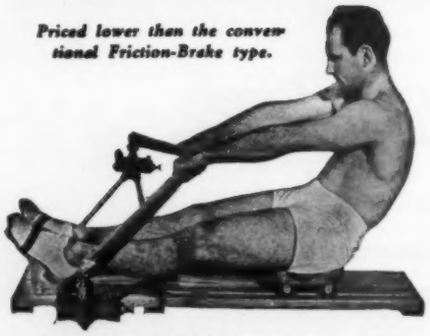
HOOSAC VALLEY LIME CO. INC.

50 EAST 42nd STREET
NEW YORK,
N. Y.



And Now!
A POPULAR-PRICED
Hydraulic ROWING
MACHINE by-
MEDART

Priced lower than the conventional Friction-Brake type.



Approximately 66% lower price. Now within the reach of every gym. Manufactured and guaranteed by "Medart" the oldest manufacturer of Gymnasium Apparatus, Basketball Backstops, Telescopic Gym Seats, Lockers, Lockerobes, Playground and Pool Equipment.

Write for complete details

FRED MEDART MFG. CO.
3542 DeKalb St., St. Louis, Mo.

SPORTS MOVIES
in
Slow Motion
on
TRACK and Field
FANCY DIVING

Full close-ups
All Champions

These are instructional films of 16 mm. size, made by a coach for coaches, and used by many collegiate and several foreign Olympic teams.

Reasonable Rates
For Rent **For Sale**

•

Write for Full Particulars

•

ATHLETIC FILMS
736 Ocean View Drive
Fullerton, Calif.

is desirable to keep the turf dry, it is just as important to keep the turf healthy. A healthy wet turf may be injured less than a dry turf that has been boiled and steamed under a canvas cover. Good judgment in keeping the cover off as much as possible will do a great deal to maintain a good sound turf.

The fundamental principles of turf management seem to be overlooked in so many instances that schools for instruction and education in this field are being held in several sections of the state for the benefit of athletic field caretakers and others interested in fine turf. These meetings, combined with demonstrations of good practices, are beneficial in assisting many schools to develop better conditions on their fields,—turf that they are proud to provide for the safety of those who use it, and proud to show the visitors.

The Texas Interscholastic League Revises Rules

(Continued from page 18)

effective at once.

Ballot No. 2.—There shall be no football practice and no football equipment issued from the close of the spring training period to September first; effective at once.

Ballot No. 3.—No school may engage in any post-season (i.e., after December first) game other than in regular inter-district play-offs scheduled by the League; effective 1939 season.

Ballot No. 4.—Spring football practice shall be limited to one calendar month, and no training shall be permitted nor equipment issued except during this period; effective spring of 1940.

The results of the above ballot were as follows:

(1) The first question 528 yes, 23 no.
(2) The second question 415 yes, 141 no.
(3) The third question 356 yes, 192 no.
(4) The fourth question 425 yes, 132 no.

By the affirmative vote on issues, stated above, the school administrations of Texas have gone a long way in maintaining the amateur status of high school football. The commercial interests are looking with a longing eye on the financial attractiveness of the high school sports' program. Texas high school football has just completed a season that sets a new record from the point of view of attendance and gate-receipts. This is another reason why school administrators should be constantly vigilant as to the control and administration of high school athletics. The interscholastic program is a high school affair and must be administered by school men. Once it falls into the hands of outside promoters, sometimes masquerading under the title of an Athletic Council, primarily

interested in championships, gate receipts, promotional schemes, then our fine high school sports' program will go as amateur sports have in all ages and all countries when other motives dominated the activity. When the outside promoters dominate the high school athletic program, we see more and more of startling football costumes, championships and prizes offered for winning teams. With the public in mind rather than the contestant, the emphasis shifts to colorful occasions, gate receipts, disregard of school time in travel and the emphasis on winning. The athletic affairs of a school must be controlled by school administrators who are familiar with the entire school curriculum.

The high school sports' program should represent the best achievements in the recreational and play program.

Changes in High Jump Form

(Continued from page 16)

ferent parts we find each fundamentally correct. The take-off, the lift of the leading leg and arms, the layout and the roll are all used to good advantage. The arm action is a little more complicated and takes practice to get the co-ordination.

Hints on High Jumping

A good tall man will beat a good short man in the high jump.

Too much jumping will hinder rather than help a high jumper.

During competitive season limit high jumpers to one afternoon a week jumping for height, and one afternoon jumping for form.

Rest for the legs allows relaxation. Spring comes from relaxed muscles.

Keep high jumpers busy on developmental exercises in the gymnasium on days that they do not jump, such as:

1. Foot exercise on ladders. 2. Hip exercise by kicking high at a hanging object. 3. Stomach work from a position with the back on the floor, lifting legs upward. 4. Arm exercise by pulling chest weights. 5. Striding and bounding on the track for general all-around exercise and looseness.

A good high jumper will ordinarily excel in other events, but he should not be overworked.

If the men are jumping with sprint spikes have them put sponge rubber in the heels of their shoes to prevent bruises.

Teach high jumpers to observe all rules of health just the same as the rest of the track squad.

Have a soft landing pit for high jumpers so that they will not be afraid of injuries in landing.

Have beginners practice jumping more often than experienced men, so that they may learn fundamentals.

SAND KNIT
AWARD SWEATERS
for Varsity Wear
Service Stripes and Chenille Letters

FOOTBALL
Jerseys—Football Pants—Hose

BASKETBALL
Shirts—Pants—Warm-Ups

SAND KNITTING MILLS CO.
Manufacturers of Exclusive Knit Goods and Clothing for Athletic Wear
1714-20 N. DAMEN AVE. CHICAGO, ILLINOIS

1839 Brought Baseball to the world—
1939 Brings the Ziel Pitching Control Developer and Tester.

(Patent Pending)

HERE IT IS

The control device that you have seen on the sport sheets and movie shorts at the Yankee training camp.

A practical and positive aid to develop pitching control in high school and college boys, methodically yet interestingly.

This control device was developed and Patented by a baseball player and athletic coach with long experience and will prove a definite and economical aid to all coaches. It is already in use by Colgate University and high schools.

For prices and further information write

Coach M. G. ZIEL
Oswego State Normal School
Oswego, New York

PASSING ACCURACY
IMPROVED 100%

The PASSTIMER Moving Pass Target will help your passers like the traps help gunners.

Runs at any angle or speed

Any conscientious player with a good throwing arm can improve his accuracy 100% by fall, if his coach provides a Passtimer.

Price $11.45 delivered

Approved by successful coaches in every state

E. O. GILLEN CORPORATION
1693 N. Water St.
Milwaukee, Wisc.
Patents Pending

Football Rules for Spring Practice

Save time in the fall with that first game only a short time distant, by having your players become familiar with the rules now during spring practice.

USE THE

PENALTY SAVER RULE BOOK

FOR

PLAYERS AND COACHES

WRITTEN BY

PAUL SWAFFIELD

EASTERN FOOTBALL OFFICIAL

AND

AL McCOY

HEAD FOOTBALL COACH, COLBY COLLEGE

DISTRIBUTED BY

THE ATHLETIC JOURNAL PUBLISHING CO.
6858 Glenwood Avenue
Chicago, Illinois

Shows the players, with pictures, just what they cannot do during a game. Every rule affecting the conduct of players during the playing of a game is illustrated. 32 Pages of graphic, instructive pictures to make a definite, lasting impression on your players to help them avoid unnecessary penalties.

Order Blank for The Athletic Journal Illustrated Football Rule Book

Price Single Copy up to 11 —25 cents each
12 to 24 copies — 20 cents each
25 or more copies — 15 cents each

Athletic Journal—6858 Glenwood Ave., Chicago, Ill.

Enclosed please find.....for which send me.....copies

Signed .....

Address .....

City ..... State .....

INDEX TO ADVERTISERS

	Page
Absorbine Jr.	40
American Hair & Felt Co.	42
Benjamin Electric Mfg. Co.	5
Bike Web Mfg. Co.	1
Continental Steel Corp., The	34
Daytona Beach Coaching School	39
Denver Chemical Mfg. Co., The	43
Dolge Co., The C. B.	38
Drake Relays	6, 7
Eagle Metalart Co.	43
General Electric	41
Gillen Corp., E. O.	47
Henderson Co., Peter	42
Hillerich & Bradsby Co., Inc.	Back Cover
Hodgman Rubber Co.	32
Hoosac Valley Lime Co., Inc.	46
Kangaroo Leather Association	37
Ken-Wel	2, 3
Long Island University Coaching School	41
Medart Mfg. Co., Fred	28, 46
Northwestern University Coaching School	33
Petersen & Co.	43
Rawlings Mfg. Co.	27
Reach, Wright & Ditson, A. J.	31
Riddell, Inc., John T.	Inside Back Cover
Sand Knitting Mills Co.	47
Seamless Rubber Co., Inc., The	30
Sherman Hotel	45
Solvay Sales Corp.	44
Spalding & Bros., A. G.	8
Tetra Bandage Co.	43
Toro Mfg. Co.	29
Westinghouse Electric & Mfg. Co.	28
Wilson Sporting Goods Co.	24-25
Witchell-Sheill Co.	Inside Front
Worthington Mower Co.	35
Ziel, M. G.	47

RIDDELL

THE HOUSE OF QUALITY and SERVICE

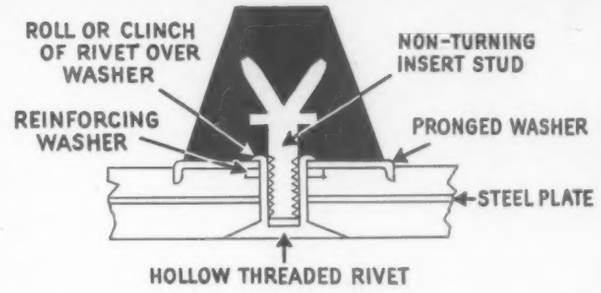
Style A Basketball. SCHOOL PRICE.**$10.00**
Style 1. SCHOOL PRICE..... **8.00**
Style 2. SCHOOL PRICE..... **6.00**

Style I Football. SCHOOL PRICE.**$7.50**
Outseam. SCHOOL PRICE..... **5.00**

Style V Volley Ball. SCHOOL PRICE.**$6.00**

Style O. SCHOOL PRICE.....**$6.00**
Style OX. SCHOOL PRICE..... **6.00**

Style X. SCHOOL PRICE.....**$5.00**
Style XX. SCHOOL PRICE..... **5.00**



1939--IMPORTANT--1939 CLEAT CHANGE

The Rules Committee has made it mandatory that cleats be ½ inch on the tread end and that they be conical in shape. The Rules Committee also has recommended that the cleats be of soft rubber and that they be "male" in type, that is the bolt in the cleat instead of projecting from the shoe. Our No. 1 Cleat since 1922 has been conical in shape, has been made of pliable rubber and has been ½ inch on the end.

In 1922 we applied for a patent to cover our construction on "female" cleats. In 1923 we applied for a patent covering "male" cleats. This construction as far as the sole of the shoe is concerned, we have used for the past twelve years in our Track shoes. We have always felt that this was a sounder construction than the "female" type of anchorage which we have been using in our Football shoes. In short, we have felt that our track construction was sounder mechanically than our football construction.

We have wanted to change to this type of construction for a number of years, but since we were not having trouble with Riddell shoes when Riddell cleats were used on them, we could not see our way clear to go through the trouble of making the change. Now since the Rules Committee has recommended this change, we welcome it as a step forward in improving our Football shoes.

1939—CLEAT PRICES—1939

Male No. 1 and No. 2 (per set 14) 30c
Female No. 1 to No. 12 (per set 14) 30c

89 Soft Toe. SCHOOL PRICE....**$10.00**

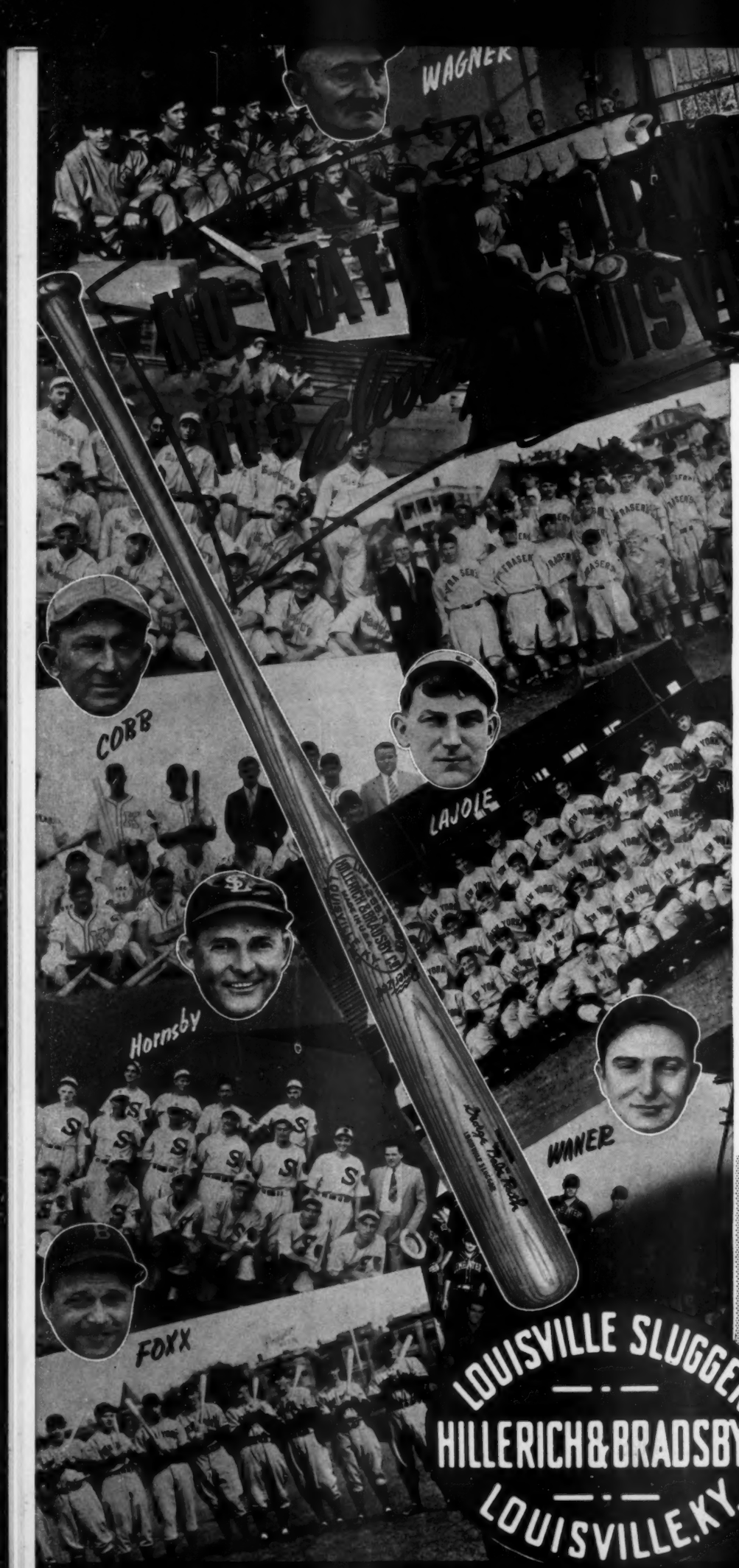
Style H. SCHOOL PRICE.....**$9.25**

Style R. SCHOOL PRICE.....**$8.65**
Style RX. SCHOOL PRICE..... **8.65**

Style P. SCHOOL PRICE.....**$8.00**
Style PX. SCHOOL PRICE..... **8.00**

Style 77. SCHOOL PRICE.....**$7.00**
Style 77X. SCHOOL PRICE..... **7.00**

1259 N. Wood Street **John T. Riddell, Inc.** **Chicago, Illinois**



FOR more than 55 of Baseball's 100 years, the brilliant record of Louisville Sluggers has gone hand in hand with its history, and from sand lot to major league, every champion has depended on Louisville Sluggers to get his base hits. Pop Anson, Hans Wagner, Ty Cobb and Babe Ruth—right down through today's immortals—Foxx, Lombardi, Gehrig—all have relied on this one make bat to send their batting averages soaring.

Your team, too, can benefit by using the "bat of champions," for the confidence that a Genuine Autographed Louisville Slugger inspires in any hitter will go a long way toward making sure of those long, clean hits that spell "victory."

Write to Department A for a free catalog showing the Louisville Slugger line for 1939.

HILLERICH & BRADSBY CO., INC.

Also makers of Louisville Grand-Slam, Louisville Lo-Skore and Louisville Invincible golf clubs.

Look for the famous oval trademark and the written signature of a famous player on every Genuine *Autographed* Louisville Slugger Bat.

INSEPARABLY LINKED WITH BASEBALL'S HISTORY